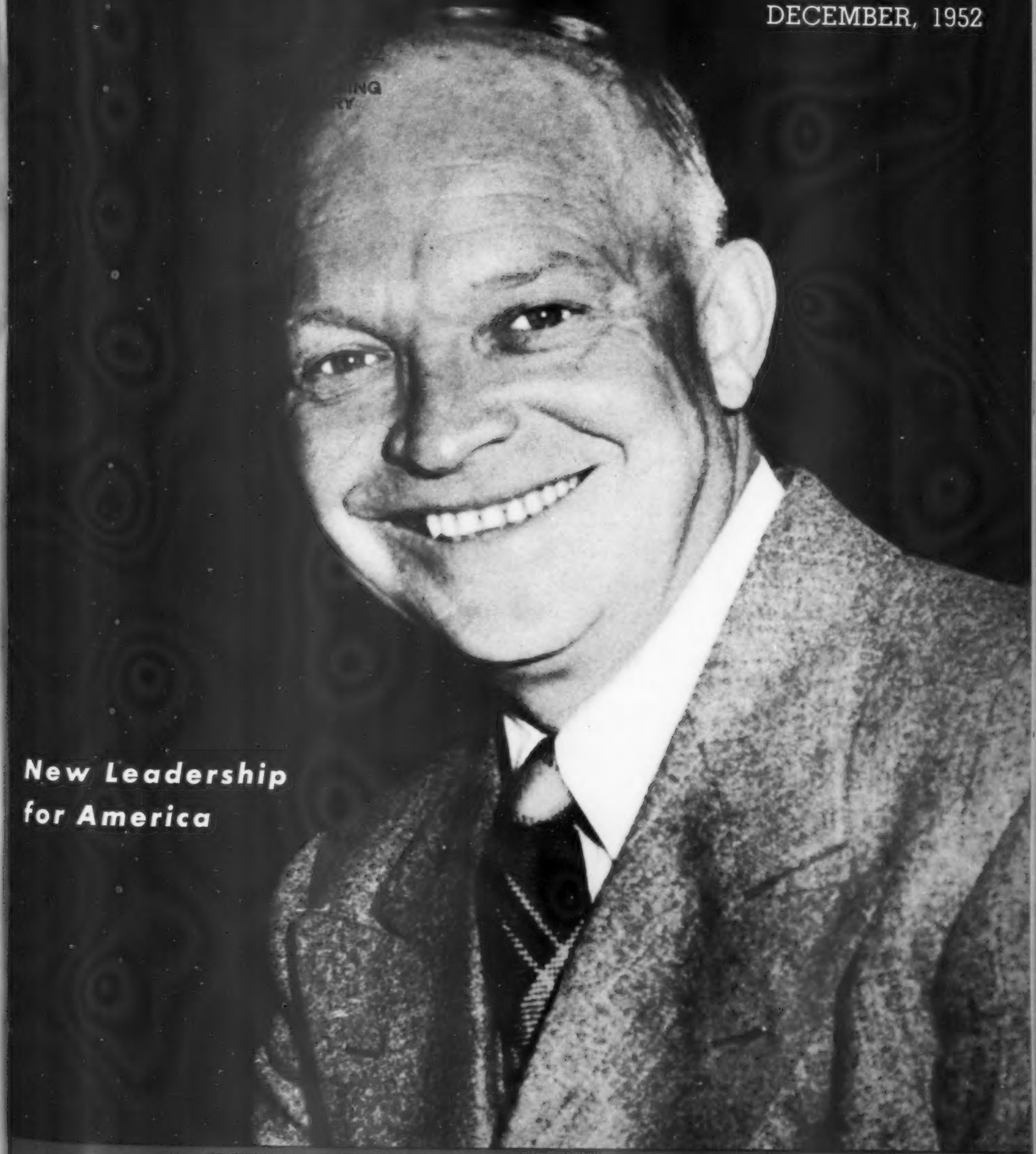
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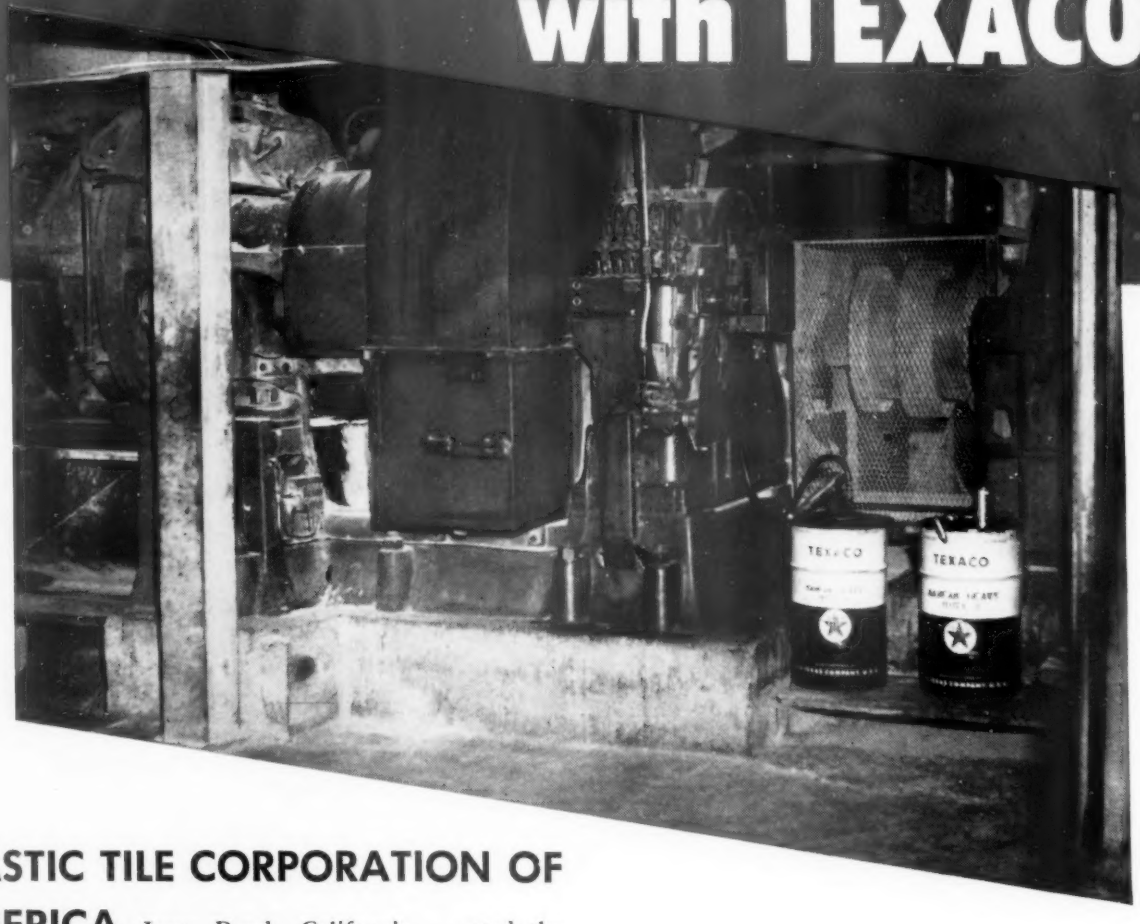
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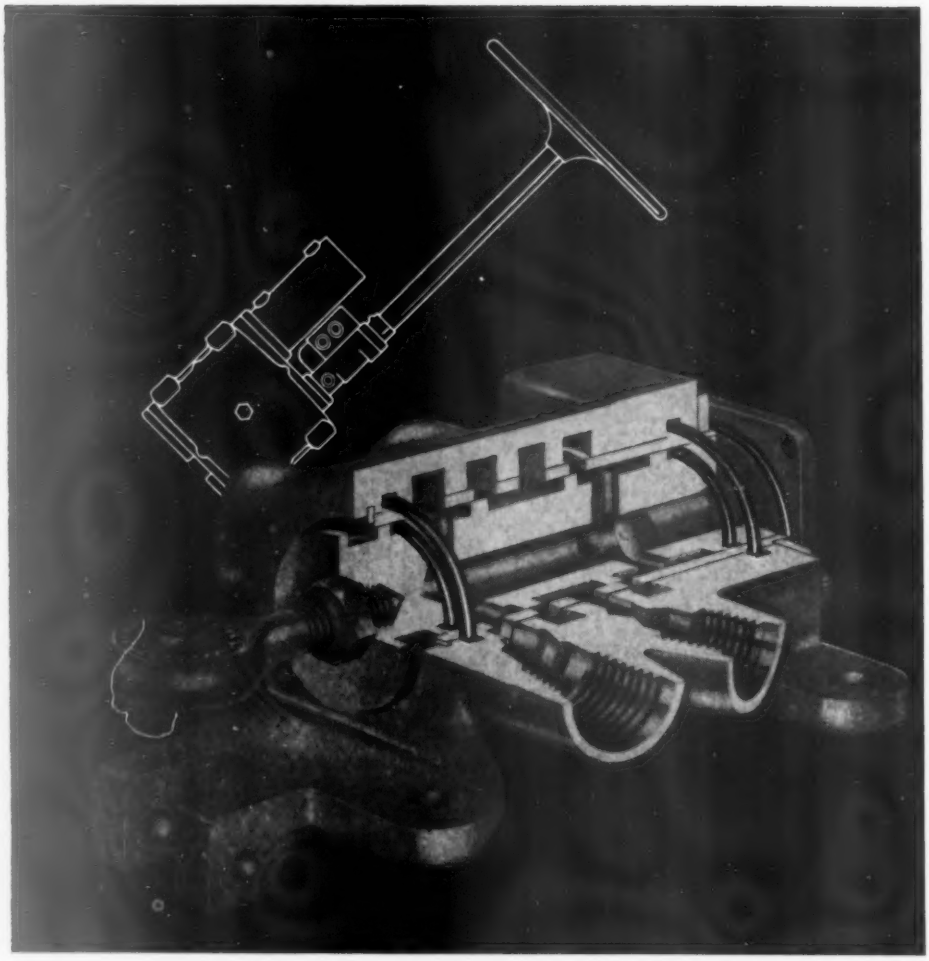
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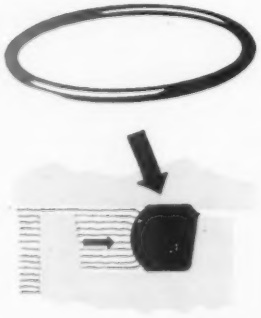
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Cutaway view showing PARKER O-rings in control valve of Ross Hydrapower Steering Gear.

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PURCHASING PREVIEWS

A WASHINGTON REPORT FOR PURCHASING AGENTS

December 1, 1952

MARKET TO BE INCREASINGLY COMPETITIVE

The first beginnings are taking form on plans for the distribution and marketing of a substantially increased volume of consumer goods. From the viewpoint of industry, the prospects are for an increasingly competitive market.

In all lines of consumer goods, producers are following their traditional formula for improving their competitive market position. New models, functional and design improvements, intensive sales efforts are being projected to vie for consumer favor.

Most sales efforts are geared to a specific level or target, and in general terms, many sales objectives are aimed at equaling or exceeding the 1950 or 1951 highs.

These marketing plans have stimulated a large volume of demand for materials and components. Effect of this trend is that even though the election returns clearly indicate a general public reaction against controls, the industrial demand for materials is sufficiently heavy to sustain the control program through the first quarter of next year.

MATERIALS WILL BE AMPLE FOR CIVILIAN GOODS

At the same time, real demand for most materials will be met during the first quarter. The prospect is for a rapid decontrol to a point where the end of winter should see the control program as merely a bookkeeping operation.

During this period, the principal function of the mobilization agencies will be planning, breaking specific bottlenecks and affording a priority treatment for delivery of materials, supplies and equipment to military and atomic energy projects.

By late summer, when the level of military production will have reached its peak and most of the expanded industrial capacity will be in place, it will become apparent that the tonnage of materials available for civilian industry will substantially exceed the quantities which were available for civilian consumption in 1950-51.

The problem of stimulating sales sufficiently to take off the market all of the materials which expanded industry is able to produce is complicated further by the fact that the level of sales during the last half of 1950 and the first six months of 1951 was buoyed up by consumer expectations of war scarcity.

SOME FACILITIES MIGHT BE CLOSED DOWN

For most lines of civilian goods manufacture, the achievement of sales volume equal to the 1950-51 highs would represent a very prosperous period.

But in terms of the tonnage of materials which will become available by mid-'53, a sales level of 1950-'51 proportions would not consume all the materials that would then be available and would lead to the hard choice of shutting down some industrial capacities.

The Office of Defense Mobilization has already given some study to this problem. The prospect of shutting down industrial capacity so recently expanded by hard economic sacrifice is considered unfortunate.

CONSUMER DEMAND WILL DIFFER FROM '50-'51

While great emphasis will be placed on expanding the market for civilian goods to exceed the 1950-'51 levels, the pattern of demand next year will be considerably different from that of the immediate post-Korean period.

Housing starts then reached all-time record high levels on a wave of demand by buyers who recalled the complete ban on new home construction during World War II. While new family formations are estimated at an approximate annual level of 600,000, new housing starts reached the startling figure of 1,400,000 in 1950.

For next year, even the most optimistic forecasts do not anticipate anything approaching this number of starts.

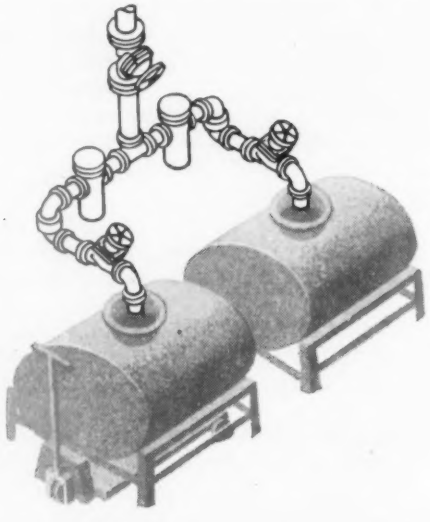
Actually, the significance of new housing starts to the national economy far transcends the immediate importance to the construction industry. Equally important is the impact of new starts on the industries producing home equipment, home appliances, home furnishings and furniture.

This CRANE VALVE Solved a Sticky Problem

In this case, a paint factory had a problem in handling liquid latex. Sticking valves delayed production; valve maintenance cost was out of reason. Then the remedy was found in this exclusive design—in the big Crane line. It's the place to look first for valves for any need. They give you more satisfaction, cost less in the long run when they're Crane quality.



Read these Facts of the Case!



Where Installed: In a paint factory making rubber base coatings, on liquid latex supply lines.

Trouble Encountered: Valves formerly used were conventional design with working parts exposed to fluid. The sticky latex accumulated and congealed in the bonnet and stem threads. Valve operation was difficult or impossible, forcing frequent clean-outs, costly production delays.

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Also, in the shift of population into rural areas under the impact of new housing construction comes the demand for new commercial structures, new public utilities capacity and connections, new roads, streets and highways.

NEW APPROACH TO MARKETING NECESSARY

To date the Government approach to these problems has been to stave off serious consideration until the new administration takes over. The political approach has been that the solutions are almost wholly within the pattern of normal competitive merchandising.

This approach fits into the wishful thinking of the public, but ignores the fact that much of credit and finance, and the whole area of taxes are rooted in Government policy.

It becomes increasingly apparent that a whole new approach must be applied to insure the marketing of the unprecedented tonnage of materials that has been added to the national economy.

While the best sales and marketing techniques are obviously a prime requisite for marketing the product that will become available, the Government's mobilization program is not alone to create new facilities but to keep the old as well as the new in operation.

This would imply that as a part of the nation's mobilization program, it will be implicit that markets must be found for the capacity to produce the 123,000,000 tons of steel that will be in place January 1, 1954—plus the non-ferrous metals which will also be available in great tonnage.

There has been some speculation that the economy cannot keep all of the steel industry operating at full tilt, and that while there may be a demand for all of the available standard priced steel, this will not be so for premium-priced steel.

It has been suggested that the Government defray the cost of keeping higher priced mills in standby operating condition, or that the Government require "priority" users of steel to buy from premium-priced mills. All these suggestions are premised on the anticipation that it will not be possible to keep all the expanded capacity operating at full tilt.

PROBLEMS IN SURPLUS CAPACITY

Well to be kept in mind is that the situation in terms of plant capacity differs substantially from that which prevailed at the end of World War II. The surplus plant capacity then was capacity specifically designed and built for the manufacture of specific military end items.

It was recognized by the public that such plant capacities were a part of the price that had to be paid for the war—also that it was virtually impossible to keep all of the so-called surplus plants in operation.

In contrast, there has been no inkling that the current vast industrial expansion program has been designed either to create standby industrial facilities in the event of war or to give new impetus to the modernization of plant facilities.

To the contrary, the industrial expansion program has been explained as a major effort to bring U. S. industry up to the standards necessary to sustain mobilization.

There can be no easy acceptance of any change in Government attitudes for some time to come, as most of the new plant capacities will not be written off against the tax levies on industry until well into 1957-'58.

SHIFT FROM SCARCITY TO SURPLUS TO BE RAPID

The problems created by expanded industrial facility will become apparent in a relatively sudden disclosure. The transition from scarcity of materials to large surplus will be fairly quick. One factor in this speed will be the expanded capacity to produce materials.

Just prior to the steel strike, inventory of steel was being accumulated at the rate of a million tons a month, and a new plant capacity is still coming into production, which could pile up inventory at an even faster pace.

From these indications, it appears that no sooner has the curtain come down on scarcities and rigid materials distribution controls, than the problem will have immediately shifted into what to do with the surplus, and how to market the expanded product of industry.

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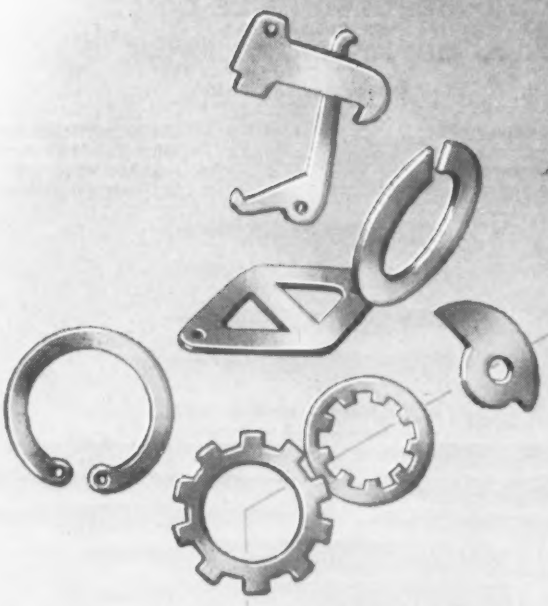
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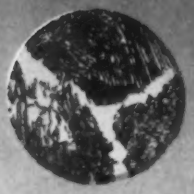
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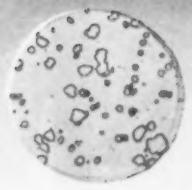
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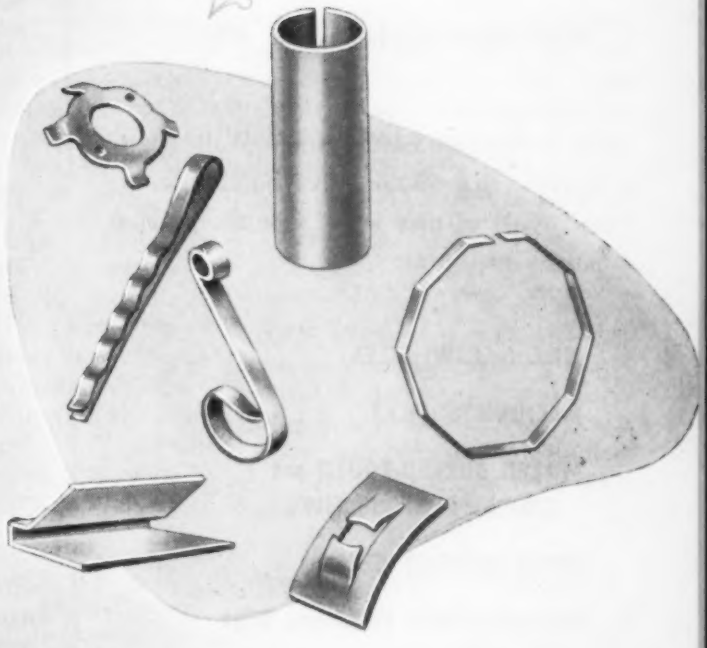


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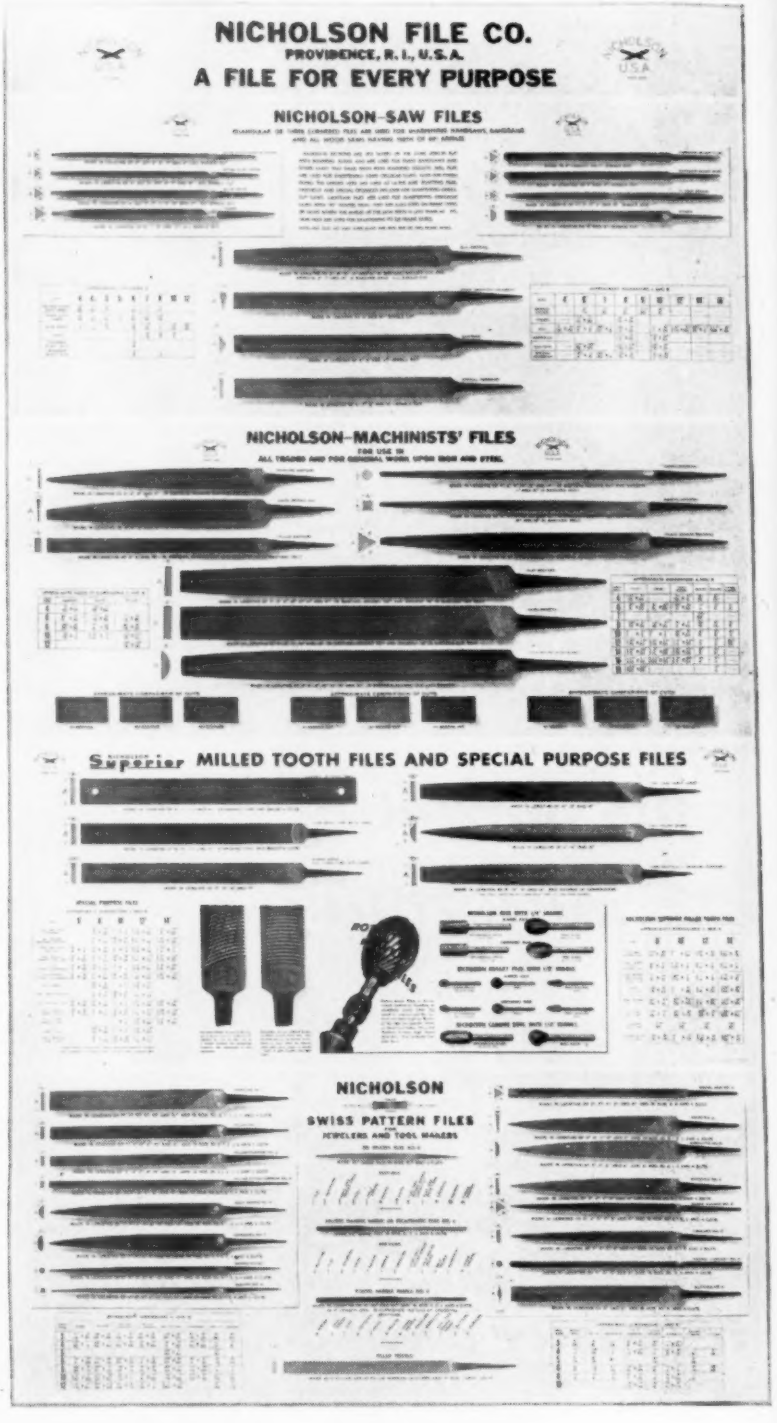
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1. FOUR different types of bag holders are subject of 6-page illustrated brochure which gives operating details and recommended applications for clamp, inflated-ring, cable and cam grip type of holders. Both manual and air-operated bag holders are described and illustrated. Richardson Scale Co.

Fire Protection Equipment Buyer's Guide

2. NEW 40-page Buyer's Guide for portable fire extinguishers and fire fighting accessory equipment illustrates complete line of protection equipment for every type of fire hazard. Chart shows how to select the proper extinguisher for particular hazards. The Fyr-Fyter Co.

Flanged and Dished Heads

3. ASME and Standard Types of flanged and dished heads, suitable for pressure vessels, tanks, boilers and other applications ranging from ladle and melting furnace bottoms to bases for lamps and stands—any application calling for an integral, continuous flange on a circular steel plate, are listed in bulletin issued by Joseph T. Ryerson & Son, Inc.

Stock Plastic Parts — Knobs, Handles, Caps, Handyheels, Etc.

4. CATALOG of stock molded plastic parts describes 36 groups of stock knobs, handles, terminal strips and similar components made by the Dimco-Gray Company. Within each group numerous design variations are possible, such as molded-in metal inserts, thread sizes, cored holes, etc. Stock parts are available in wide variety of thermo-setting plastic materials, having special properties as to color, heat resistance, strength, chemical resistance and electrical properties.

Precision Surface Grinder

5. BULLETIN illustrates and describes Reid Model 618 Precision Surface Grinder which is available in four models, having power feed table or hand feed. Bulletin includes information on attachments and accessories. Reid Brothers Co., Inc.

Electrical Contact Rivets

6. ELECTRICAL contact rivets made from fine silver, coin silver, silver alloys, palladium and powdered metal compositions, are discussed in Catalog C-521, which also lists standard sizes of flat, crowned and pointed contact rivets. Gibson Electric Co.

Plastic Pipe & Fittings

7. PRODUCT literature describes flexible and semi-rigid plastic pipe, giving dimensions and physical data, chemical properties, and applications. Ready reference chart lists available forms, wall dimensions, sizes and fittings, temperature limitations and other data. Plastic Products Divn., Triangle Conduit & Cable Co.

Lathes, Drill Presses, Shapers

8. NEW 88-page General Catalog 5205 contains descriptions and specifications of the entire South Bend line of lathes, drill presses, bench shapers and accessories. Various new developments are featured. South Bend Lathe Works.

Pipe and Tube Straighteners

9. TECHNICAL Bulletin No. 52 presents in "case study" form variety of ways in which rotary straighteners have solved plant production problems. Typical of data presented are straightening problems on from ⅛" non-ferrous tubing to 4" steel pipe Mackintosh-Hemphill Co.

(*Please turn to page* 20)

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Metered Mail Saves Money

10. HOW TO get the mail out faster at lower cost is the subject of booklet that outlines the benefits of metered mail. The booklet explains how metered mail saves time, stops stamp losses, and speeds mail through the postoffice. Copy is available from Pitney-Bowes, Inc.

Portable Loading Ramp

11. PORTABLE loading ramp which is quickly installed and which is available for electric push button operation or manual operation, is covered by illustrated bulletin. Unit can be recessed in dock or placed in front of it. John B. Illo.

Automatic Filling Scale

12. CATALOG sheet illustrates the Thayer fully automatic filling scale, Model 400N. Scale net weighs to an accuracy of 1/10 pound and bags bulk materials completely automatically—chemicals, plastics, feeds, salts, sugars, abrasives, etc. Performance within above accuracy limits is guaranteed for any desired weight from 25 to 200 lbs. Thayer Scale & Engineering Corp.

Phenolic Molding Compounds and Resins

13. Phenolic Molding Compounds, Industrial Resins and Coating Resins are subject of condensed catalog issued by Durez Plastics & Chemicals, Inc. Table presents properties and uses of molding compounds, and varied uses of industrial resins and the coating resins are illustrated and explained.

Diesel and Gasoline Engine Powered Fork Lift Trucks

14. Buda fork lift trucks, FT Series, Diesel or Gasoline engine powered, are illustrated and describd in detail in new bulletin. Capacities range from 3000 to 7500 pounds. Trucks are designed for all types of lifting, loading, stacking, storing and warehousing. The Buda Company.

Condensers, Heaters, Coolers

15. THREE new, all purpose smaller size condensers, heaters, coolers—for chemicals, pharmaceuticals, gases, solvents, acids, caustics, vapor, oils solutions as well as refining,

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processing and blow downs are introduced in Bulletin 800. The units are obtainable in a wide range of materials—stainless, copper, steel, aluminum, brass, or combination of materials. Manning & Lewis Engineering Co.

Guide to Pump Applications

16. Reference chart on small pump applications has been published by the Tuthill Pump Company. The letterhead size chart lists the various types of Tuthill pumps, the services for which each is built, the performance characteristics, types of packing, styles of mounting, and other features, simplifying selection of proper pump for a particular service.

16-Page Catalog on Chairs

17. Steel and wooden chairs and tables, folding and non-folding are subject of catalog issued by the Adirondack Chair Co. All steel chairs, padded seats, cushioned seats, wood, aluminum and bentwood chairs are illustrated; also, folding tables, restaurant-type tables with plywood, masonite, padded or plastic tops.

Super-Centers for Lathes and Grinders

18. FOLDER illustrates "Super-Centers" for lathes and grinders which have replaceable tip of Exmet, new alloy capable of withstanding heavy wear and stress at high speeds and extremely low temperatures. Folder gives ordering information for each taper style, Morse, B & S and Jarno. The DoAll Co.

Pedestal-Bearing Induction

19. Standard construction features and types of construction of Allis-Chalmers Manufacturing Company's large pedestal-bearing induction motors is contained in Bulletin 05B7771. These motors can be furnished for any practical horsepower, speed, voltage and frequency in ratings above 1 hp per rpm. While open self-ventilated construction is standard, protected, drip-proof and drip-proof protected construction can be furnished in all ratings. Splash-proof construction is generally limited to the higher speeds where the enclosure does not hamper ventilation.

New Ultra Speed Gear Hobbing Machine

20. Bulletin 1458-52, 12 pages, describes new production model 1458-A Michigan Ultra Speed Gear Hobbing Machine. The bulletin includes design and operating descriptions, tooling layouts for hydraulic clamping, and general machine specifications. Cost saving advantages of these hobbers are discussed. Table lists specifications for standard 'Michigan Process' unground and 'Michigan' ground multiple thread hobs for use on the Ultra-Speed jobber. Michigan Tool Co.

The Answer to Dermatitis

21. Catalog "The Answer to Industrial Dermatitis is just as simple as this", tells about Skin-Cote products, and contains comprehensive chart of chemicals and processes and the type of "Skin-Cote" recommended for each. The Boyer-Campbell Co.

Cabinet, Hand-Turret and Toolroom Lathes Internal and Universal Grinders

22. The complete line of Rivett cabinet lathes, hand turret lathes, toolroom lathes, and internal and universal grinders are illustrated and described in Bulletin 500F issued by Rivett Lathe & Grinder, Inc. Illustrations indicate work saving methods combined with extreme precision.

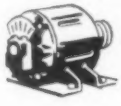
High-Speed Copy Machine

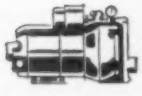
23. Machine for moderate copy production in drafting rooms or business offices, the Copyflex Model 30, is described in Bulletin issued by Charles Bruning Company Inc. The new machine gives a full 46″ printing width, allowing ample leeway for the standard 42″ roll stock or for multiple cut sheets inserted side by side. Copying is at the rate of 12

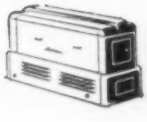
(Continued on page 22)

your competition may be MORE than one jump ahead if you make these products: kitchen ranges • water heaters • regulators • refrigerator units • pumps • motors

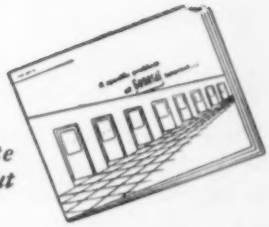






Our packaging engineers have just designed new and different containers for *each* of these products. They are lightweight and extra strong! They are *designed* to cut packing and shipping costs, to speed production! They are good looking, too! We have experience in designing better shipping containers for practically all types of products. Write us. Get the facts on this important subject.



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General ★★★★★ BOX COMPANY
1843 Miner Street,
Des Plaines, Illinois



(*Continued from page 20*)

linear feet per minute, ready-to-use prints being delivered at the rear of the machine. The model 30 copies practically anything drawn, written, typed or printed on translucent paper. Prints can be made in 20 color combinations.

Steel Toe Safety Shoes

24. CUT-AWAY drawings of new shoe styles equipped with air cushioned innersoles of genuine foam latex which provide unusual comfort, feature new catalog on Safety First steel-toe safety shoes, which also covers dress and work shoes. Safety First Shoe Company.

New Booklet on Cotton Card Drives

25. REVISED booklet B-4596-A, on cotton card drives for the textile industry, emphasizing the flexibility of individual card drives, and illustrating three types of motors designed for card service, is available from Westinghouse Electric Corp. The three types are the lint-free motor, the totally enclosed motor, and the gearmotor. New lint-tight card controller is also described.

Safety Equipment

26. "EVERYTHING for Safety" is title of 144-page catalog No. 100 listing and illustrating "anything required for a comprehensive safety program" from safety clothing to safety tools, issued by The Boyer-Campbell Co.

Soft Water for Industrial Plants

27. IF your plant is having hard water problems, you will be interested in bulletin describing and illustrating Uniflow Industrial Water Conditioning Equipment which is made by the Uniflow Manufacturing Co.

Materials Handling — Ball Transfers

28. FOLDER gives general and specific data on construction and use of ball transfers, with illustrations showing uses. Drawings show construction of six different types. Mathews Conveyor Co.

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Industrial Motor Controls Catalog

29. NEW motor controls catalog contains easy-reference section, weights and dimensions sections, and ordering sheets on the complete Arrow-Hart line of advanced type "RA" motor controls, comprising magnetic starters, multispeed and reversing starters, magnetic contactors and reversing contactors. Ordering information is included on manual starters, push button stations and interchangeable control units, midget relays, limit switches and push-pull selector switches. Arrow-Hart & Hegeman Electric Co.

Batch Production Case Hardening

30. Standard batch furnaces for case hardening steel are the subject of bulletin issued by Surface Combustion Corp. Controlled atmosphere equipment, including muffle furnaces and generators plus salt bath pot furnaces and direct-fired oven furnaces are shown and described with typical applications to gas carburizing, liquid carburizing and cyaniding and pack carburizing.

System for Measuring Surface Flatness

31. OPTICAL Straightedge Catalog No. 20 describes new system for measuring surface flatness by means of optical levels that utilize a beam of light as straight line reference. It shows how variations in surface flatness can be readily located and measured to an accuracy of plus or minus 0.0004" along a 3 ft. segment. F. T. Griswold Mfg. Co.

Speed Reducers

32. COMPLETE line of Dodge torque-arm speed reducers and new overload release designed for use with the reducer, are described and illustrated in Bulletin A-614-A. New torque-arm speed reducer has increased capacity range to 43 hp. The new line of shaft-mounted reducers cover a speed range of 12 to 330 rpm. Dodge Manufacturing Corp.

High-Precision Castings

33. NEW 8-page booklet presenting design and engineering data on Hyprecision castings has just been released by the Sessions Foundry Co. Tolerances of plus or minus .005" per dimensional inch, unusually smooth as-cast surfaces, draft angle requirement only half the ordinary minimum—these and other design details of castings are discussed. Index readily indicates points of interest.

Pressure-Seal Valves

34. NEW 16-page catalog describing Pressure-Seal stop, check and non-return valves gives complete descriptions, design characteristics and dimensional details. Valves are furnished in sizes from 2½" to 14", and in 600, 900, 1500 and 2500 lb. pressure classes. Tables and charts enable ready calculation of pressure drop in any Edward stop, check or non-return valve, and aid in valve selection. R. Edward Valves, Inc.

Barrel Plating & Processing Machines

35. BULLETIN No. 60 gives complete descriptions of Stevens automatic barrel plating and processing machine, and recent engineering developments in the field of automatic barrel plating are pictured. Special applications are described in detail. Frederic B. Stevens, Inc.

Flexible Crown Coupling

36. BULLETIN describes the De Laval Crown coupling. Complete data on this flexible coupling is included along with illustrations and information on construction, horsepower, ratings, speeds, applications and selection. No lubrication is required with rubber bushed crown couplings. Couplings allow for angular misalignment, lateral misalignment and axial movement. Synthetic rubber bushing has high distortion resistance and is unaffected by oil. De Laval Steam Turbine Co.

(*Continued on page 24*)

STANDARDS and SPECIALS by the Millions

THE FERRY CAP & SET SCREW CO.

2165 SCRANTON ROAD • • • CLEVELAND 13, OHIO



"SHINYHEADS"

America's Best Looking Cap Screw

Made of high carbon steel — AISI C-1038 — to standards for Full Finished hexagon head cap screws — bright finish. Heads machined top and bottom. Hexagon faces clean cut, smooth and true, mirror finish. Tensile strength 95,000-110,000 p.s.i. Carried in stock.

"HI-CARBS"

Heat Treated Black Satin Finish

Made of high carbon steel — AISI C-1038. Furnished with black satin finish due to double heat treatment. Hexagon heads die made, not machined. Points machine turned; flat and chamfered. Tensile strength 130,000-160,000 p.s.i. Carried in stock.





"LO-CARBS"

Made of AISI C-1018 steel — bright finish. For use where heat treatment is not required and where ordinary hexagon heads are satisfactory. Hexagon heads die made to size — not machined. Points machine turned. Tensile strength 75,000-95,000 p.s.i. Carried in stock.

SET SCREWS

Square head and headless — cup point. Case hardened. Expertly made by the pioneers in producing Cup Point Set Screws by the cold upset process. Cup points machine turned. Carried in stock.





FILLISTER CAP SCREWS

Heads completely machined top and bottom. Milled slots — less burrs. Flat and chamfered machined point. Carried in stock.

FLAT HEAD CAP SCREWS

Heads completely machined top and bottom. Milled slots — less burrs. Flat and chamfered machined point. Carried in stock.





"SHINYLAND" STUDS

All studs made steam-tight on tap end unless otherwise specified, with flat and chamfered machined point. Nut end, oval point. Land between threads shiny, bright, mirror finish. Carried in stock.

ADJUSTING SCREWS

Valve tappet adjusting screws — Hexagon head style — to blue print specifications — hexagon head hard; polished if specified — threads soft to close tolerance — points machine turned; flat and chamfered.





CONNECTING ROD BOLTS

Made of alloy steel — heat treated — threads rolled or cut — finished to extremely close thread and body tolerances — body ground where specified. Expertly made by the pioneers in producing connecting rod bolts by the cold upset process.

SPRING BOLTS

Case hardened to proper depth and ground to close tolerances. Thread end annealed. Supplied in various head shapes, with oil holes and grooves of different kinds, and flats accurately milled.



FERRY PATENTED ACORN NUTS



For ornamental purposes. Steel insert — steel covered. Finish: plain, zinc plated, cadmium plated. Size: 9/16", 3/4", 15/16" across the flats.

Tapped 1/4" to 3/4" inclusive. Cross section of Ferry' patented acorn nut, showing how steel hexagon nut fits snugly into shell.



Pioneers and Recognized Specialists, Cold Upset Screw Products since 1907

STANDARDS carried by LEADING DISTRIBUTORS

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WRITE FOR INFORMATION

SEND FOR SAMPLES

(*Continued from page 20*)

Selenium Rectifiers

37. Bulletins describe Richardson-Allen selenium rectifiers for electroplating, anodizing, and power conversion, and automatic chargers for industrial truck batteries. Rectifier is completely integrated and contains within a single cabinet all the necessary equipment as well as the essential protective and overload devices to assure long and dependable life. No components are external to the cabinet; all wiring is within the unit. Richardson-Allen Corp.

Carbon Materials for Mechanical Parts

38. NEW 32-page catalog on carbon materials for mechanical parts includes complete technical data on properties, grades, methods of attachment, and chart of expansion of various metal as compared to Purebon carbon. Use of materials for bearings and seal rings, packing rings, piston rings, valve seats, etc. are described. Pure Carbon Co., Inc.

Dial Gage Catalog Presents New Developments

39. New developments in dial gages are presented in Catalog D published by the Nilsson Gage Co., Inc. The catalog shows what is said to be the smallest dial bore gage on the market with spring loaded centralizing plungers with a range from 3/16″ to ¼°. Four gages cover a range from 3/16° to 1″; 5 gages cover 1″ to 12″. Also covered are dial snap gages, and dial groove and groove location gages which include newly developed groove diameter gages to check diameters of internal grooves and recesses, truarc rings, 'O' rings, oil grooves, etc., and groove location gages. Dial pitch diameter gages to check pitch diameters of gears and splines are shown.

Lathes, Drill Presses, Shapers

40. SOUTH Bend lathes, drill presses, bench shapers and accessories are described and illustrated at considerable length in new 88 page catalog No. 5205, issued by the South Bend Lathe Works.

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Telephone Handsets and Accessories

41. File folder-catalog sheet describes line of telephone handsets and accessories available from the Connecticut Telephone & Electric Corp. It carries identifying photographs, wiring diagrams, cordage codes, connection assemblies, etc., for both military and commercial applications. Charts show part numbers, military designations, circuit arrangements and electrical characteristics, and will help P.A.'s and others make selection of components.

Spray Nozzles for Varied Industrial Applications

42. Forty-page Industrial Nozzle Bulletin No. 5200 has been published by Binks Manufacturing Company. It describes industrial spray nozzles for a broad range of commercial and industrial processes. All nozzles are illustrated. "Blue print" drawings show proper installation details where this information is required. The handy index lists 29 different applications for industrial spray nozzles.

Case Study of Cost Savings With Airless Blast Cleaning

43. Bulletin 864 published by American Wheelabrator & Equipment Corp., on the airless blast cleaning of weldments, includes a detailed and illustrated case study on weldment cleaning at a large midwestern company together with figures showing cost savings effected.

Plastics — Kel-F, Polyethylene, Etc. Forms, Characteristics, Products

44. Available forms of polyethylene, Kel-F, polystyrene and methacrylate are described in a new general catalog issued by Plax Corporation. Chart gives data on mechanical, electrical, thermal chemical and physical properties, and illustrations show primary uses and applications.

Record Retention and Destruction

45. The important subject of record retention is covered in booklet entitled "A Basic Plan for Record Retention and Destruction", published by Remington Rand Inc. The booklet is designed to aid management in the intelligent planning for disposition of records, and the economical safe storage of those that must be retained. Subjects covered are Classification of Business Records, Efficient Record Handling Can Save Money, How to Organize a Retention Plan, Record Retention can Start Today, How to Operate a Retention Plan and the Tools for Effective Record Retention. Included is a case history of a record retention program of a large utility corporation.

Case Histories About "Rollpin" Self-Locking Fastener

46. First catalog published about the "Rollpin" self-locking fastener, product of the Elastic Stop Nut Corporation of America, contains interesting case histories and latest engineering data on this new fastener. Photos illustrate the versatility of this device as a practical substitute for rivets, cotter pins, set screws, stop pins, hinge pins, positioning dowels, lock pins and shaft keys. The rollpin is a hollow, split, cylindrically formed pin chamfered at the ends and heat treated for toughness, resilience and shear strength. Liberal hole tolerances for this fastener permit the use of ordinary production drilling. Samples of the Rollpin are available.

Oil-Tight Push Button Controls

47. The complete Arrow-Hart line of oil-tight push button controls is described and illustrated in 12-page folder issued by The Arrow-Hart & Hegeman Electric Co. Comprising the line are standard, extended and mushroom buttons, 2- and 3-position selector switches, and pilots, together with suitable legend plates. Oil tight enclosures of heavy cast aluminum are supplied for mounting any unit or combination of units close to the machine and handy to the operator. Any combination of buttons, switches and pilots can be assembled to give precise control for every circuit need.

STOP RUST! with RUST-OLEUM

See Rust-Oleum Demonstrated Booth 1237 Plant Maintenance Show Cleveland, Ohio

BEAUTIFY AS YOU PROTECT—ALL COLORS, ALUMINUM AND WHITE!

RUST-OLEUM may be applied directly over *rusted surfaces without removing all the rust!* Just remove rust scale and loose particles with wire brush and sharp scrapers . . . then apply by brush, dip, or spray. Costly sandblasting and chemical pre-cleaning are not usually required. Easy as that to cut your maintenance costs. Specify **RUST-OLEUM** to your painting contractor or architect for *every rustable* metal surface! Prompt delivery from Industrial Distributor stocks in principal cities.

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FREE SURVEY: A **RUST-OLEUM** specialist will gladly survey your rust problems. He'll make specific tests and recommendations. No cost or obligation. See Sweets for complete catalog and nearest **RUST-OLEUM** distributor, or write for literature on your company letterhead.



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- ☐ Have a Qualified Representative Call
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FILOSOFY OF BUYING

ON the cover of this issue, for the second time in our publishing history, PURCHASING departs from the established portrait series of leaders in purchasing to present the elected leader of the nation. General Eisenhower's predecessor in this respect was the late President Franklin D. Roosevelt. Both of these men came into office at a time of national and international unrest and crisis. Both elections were marked by a tremendous wave of popular support in every section of the country, erasing traditional party lines. Both men brought to the office extraordinary gifts of vital personal leadership. Both heralded the beginning of a fundamentally new approach to national economic policy and action suited to their day. Both kindled hope, confidence, and resolution in the nation at large.

Our choice of the President-elect as our cover subject is the expression of the profound national unity and loyalty that are symbolized in the person of our chosen leader. By the time this issue appears, the heat of the election campaign will have passed, and all good citizens will be working together at our common job of building a better and stronger nation. That is everybody's job. Good purchasing and good business can flourish only in the climate of a sound, strong, united, free national economy. In the words of General Eisenhower, "Our cause is *America!*"

• •

THEY say that true art is timeless, but City P. A. John Pierce of Wichita has some reservations to that theory. One of his current projects is the redecoration of the Forum. Last time the job was done, in 1932, two large paintings were prepared and hung on either side of the stage. They depicted "The Spirit of Wichita", appropriately featuring aircraft as one of the city's leading industries. In the twenty years that have passed since then, the 1932 model planes shown in the paintings have grown more and more outdated, and more than one loyal and progressive Wichitan has winced at viewing this antiquated display, presumably typifying the spirit of the community. When they were removed for the present painting job, practical and civic minded P. A. Pierce announced that the paintings would not be replaced, nor would any effort be made to bring them up to date. "The planes being built today will be old-fashioned ten years from now," he said, taking the long view. "Besides, it's more economical to just put on a clean coat of paint."

• •

WE are reliably informed that the editorial board of Webster's New International Dictionary is planning to include the word "bafflegab" in its addenda of new words, 1953 edition. Just how the word will be defined is not divulged at this time, but Milton A. Smith, assistant general counsel of the U. S. Chamber of Commerce, who originally coined the term, is not so reticent. It is intended, he explains, to describe "the utter incomprehensibility, ambiguity, verbosity and complexity of government regulations".

• •

OUR esteemed contemporary, *The Journal of Commerce*, recently devoted a front page column to the subject of purchasing agents and their responsibilities. By way of introduction, they dusted off an old story that has achieved new timeliness in view of today's intensified sales effort.

"Young man," said the p.a. to the salesman, "do you know that today I have refused to see seven salesmen?"

"I know," replied the salesman. "I'm them."

• •

COMMENTING further on this theme, *J of C* points out the dual responsibility of purchasing in evaluating the many offerings that are being pressed upon him—the

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need for alertness so as not to miss pertinent new products or "that better mousetrap", and at the same time the need for unending vigilance to avoid the purchase of things that ought not to be bought. In this connection, the writer cites the case of the Texas cowboy who wandered into the famous Neiman Marcus department store in Dallas. After a thorough tour of inspection, he remarked to a saleslady:

"I ain't never seen so many things I could do without."

• •

THE income tax man and the courts have testified to the generally high ethical standards of purchasing men in a decision denying a taxpayer the right to deduct from his income a sum alleged to have been paid to a purchasing agent in order to secure a contract. After due deliberation, the court declared that this was not an "ordinary and necessary" business expense. The decision is particularly interesting in view of another Supreme Court ruling allowing an optician to deduct rebates made to oculists who sent him business. This was characterized as an "ordinary and necessary" expense within the meaning of the code.

• •

ANOTHER tax ruling of interest to purchasing men concerns a company that patronized the black market. The tax commissioner contended that earnings must be calculated on the basis of the lower OPS ceiling prices, but the court overruled this contention, permitting the taxpayer to figure earnings on the actual prices paid for the goods. However, another firm, which tried to deduct fines and penalties incurred for violation of antitrust laws, has this deduction disallowed by the U. S. Court of Appeals on the grounds that it would minimize the punishment, thereby frustrating the purpose and effectiveness of well defined public policy.

• •

WHAT's the difference between a gunny sack, a tow sack, and a burlap bag? Simply whether you're buying it in Chicago, New Orleans, or New York, according to City P. A. William H. Butler of Newark, N. J., urging his fellow members of the National Institute of Governmental Purchasing to work for uniform nomenclature in describing and buying commercial products.

YOU *Can* AVOID DIE COSTS COMPLETELY

On Your Next **STAMPING ORDER**





Yes, you can – but it's not *necessarily* the best thing for you.

You want the lowest unit cost – *for the life of the part,* including re-runs. It may well be that our **Machine-Cut Method,** with no die cost, does work out best.

Or, it might better be our **Short Run Method,** using economical blanking dies and stock punches.

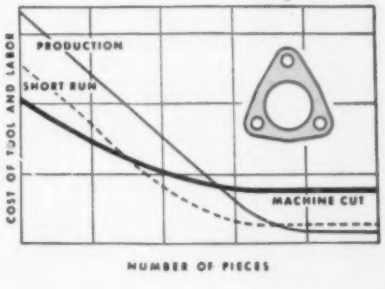
Sometimes, even with very short runs, it pays to use our **Production Method** with a standard die or our own surprisingly inexpensive Hecht-type tool.

In *any* case, the decision is a technical one based on many factors, not just length of run. You save money when the correct decision is made.

WE USE ALL THREE METHODS — LET US MAKE AN IMPARTIAL DECISION FOR YOU

For example, take the part illustrated. From 1-65 parts, our Machine-Cut Method is most economical. At 65 parts, the Short-Run Method is best until, at 7,000 units, the standard Production Method is most satisfactory.

These breaking points as charted vary drastically with every stamping, but the general principle remains the same.



LAMINATED SHIM COMPANY, INC.

Manufacturers of ALL TYPES OF SHIMS

STAMPINGS DIVISION

"ONE PIECE OR ONE MILLION"

STAMPINGS DIVISION, LAMINATED SHIM COMPANY
2412 Union Street, Glenbrook, Conn.

Gentlemen:

Please rush me my free copy of "SERVICE IN STAMPINGS"—the 12-page, illustrated booklet full of helpful facts on the economical buying of stampings.

NAME_____ TITLE_____

COMPANY_____

STREET_____

CITY_____ ZONE_____ STATE_____

HALLOWELL'S NEW "640" SERIES



3 BASIC MODELS
with
5 BASIC PARTS
for your convenience

MODEL	COMPONENT PARTS
640	1 bench top 1 drawer unit 1 cabinet unit 2 bases
643	1 bench top 2 drawer units 2 bases
646	1 bench top 2 cabinet units 2 bases

UNIT work benches

Multiple Unit design—only five component parts—enables you to *custom build* HALLOWELL Unit Work Benches to fit your requirements. Ample storage space encourages good housekeeping. Standardized construction permits individual or continuous bench installations . . . provides interchangeability with existing HALLOWELL Work Benches of similar dimensions. Write for literature today. STANDARD PRESSED STEEL CO., Jenkintown 31, Pennsylvania.

HALLOWELL SHOP EQUIPMENT DIVISION

SPS

JENKINTOWN PENNSYLVANIA

MEN OF GOOD WILL

THIS is the season of year traditionally dedicated to the spirit of good will. For some years past, purchasing men have become acutely conscious of the value of good will in their business relationships as a practical asset and a fundamental requisite of successful purchasing. They may be expected to get into the spirit of the season with enthusiasm.

It so happens that this is also the time of year when top management, reviewing the preliminary balance sheets of the year's operations and peering cautiously into an uncertain future, warns its purchasing people not to express their good will to suppliers in over-liberal commitments. Also, it is the time of the annual admonition to discourage salesmen from putting their good will in the form of elaborate personal remembrances to buyers—a persistent phenomenon that may be expected to flourish anew with the return of a buyers' market.

These warnings should not be construed as putting the brakes on good will in buying and selling. They are entirely consistent with the essence of good purchasing, on the economic, scientific, and ethical planes alike. They are merely warnings against thoughtless excesses that might arise.

But it is likewise appropriate and timely to voice a warning against a tendency that might be characterized as good will in reverse. The shortages and emergencies of the protracted sellers' market phase of the past months have created many tensions and frustrations. Buyers haven't always been able to get what they wanted or as much as they wanted, and suppliers haven't always been able to do as much for their customers as they wished. These situations haven't always been handled tactfully, on either side. Consciously or unconsciously, some buyers have been compiling their private blacklists, as the obvious means of retaliation now that the tide is turning.

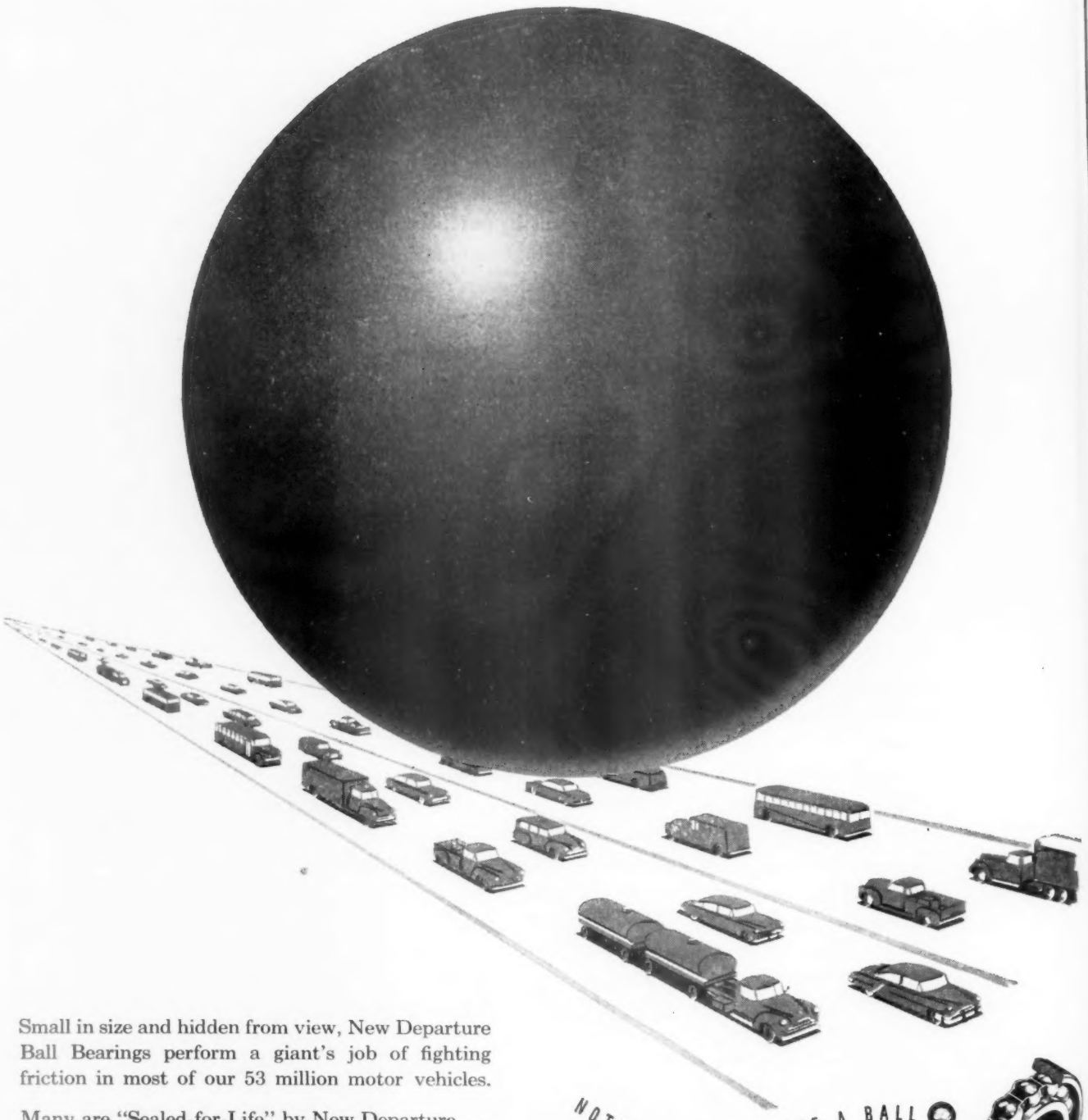
That's poor purchasing—the sort that narrows choice of markets and sources and is likely to backfire with redoubled force. Let's remember that true good will knows no season, and that there are many years and many problems still ahead.

Stuart F. Heinritz

CORRECTION NOTICE

Due to an error in engraving, a portion of our November edition got into the mails with the Purchasing Opinion Poll incorrectly reported, before the error was detected. The first question read: "If price rises follow the new wage agreements in the coal industry, do you believe that coal will lose any substantial part of its market as an industrial fuel?" The answers should have been listed thus: "*Short Term*—Yes 41%, No 59%; *Long Term*—Yes 91%, No 9%."

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NEW DEPARTURE
BALL BEARINGS

NEW DEPARTURE • DIVISION OF GENERAL MOTORS • BRISTOL, CONNECTICUT

Highlights

This issue's important features summarized for the busy reader



Purchasing men who attended the **Metals Show** at Philadelphia in October were rewarded by finding there an amazing display of the recent achievements of metallurgical technology and practice—new materials and alloys that are already finding a place in product design and on industrial shopping lists, new methods that are replacing traditional shop practice, and new metalworking equipment that is saving time, money, and material for progressive firms. The emphasis was on practical application; many of the exhibits were in the form of working demonstrations and finished products. It was, in the words of one observer, equivalent to making more than 400 plant visits. Our reporter presents the highlights of the exhibits and technical papers in a summary on page 80.

The fall **Conference Meetings** of many different purchasing groups developed a wealth of information and progressive thought on varied aspects of the purchasing job. Reported in this issue are the following:



Purchasing Efficiency is being evaluated by company management, whether consciously or unconsciously, and it behooves the purchasing executive to do likewise, by developing the best possible measures of departmental performance and the most effective means of reporting. The article on page 98 reviews the proven principles and practices that have been established in this difficult field and presents some practical and stimulating suggestions for the purchasing man who wants to know how well he is doing, and wants to improve his performance.

An insurance company buyer tells, on page 96, how use of the **Traveling Requisition** has materially reduced the clerical work of purchasing and stores personnel, and how the system is tied in with inventory records.

Purchasing is **More than Buying.** The article on page 69 cites four areas of purchasing interest that can substantially increase the effectiveness of a purchasing program—materials research, traffic, value analysis, and inventory control. The profitable experience of his company in relating these fields to purchasing policies and decisions may suggest ways of making purchasing more valuable to your company.



Are you getting the maximum benefit for yourself and for your company from your **Interviews with Salesmen?** Do you have a sound, comprehensive, well planned policy to guide you in this activity, or do you merely improvise? Turn to page 111 for an analysis of the objectives and techniques of interviewing and a check list that will help you to acquire the right kind of information and to establish the right kind of business relationships with those who call upon your company.

A common-sense, non-technical explanation of the law of **Supply and Demand** and how it operates in respect to price levels and fluctuations, appears on page 114. Here is economic theory translated into the language of the purchasing man.

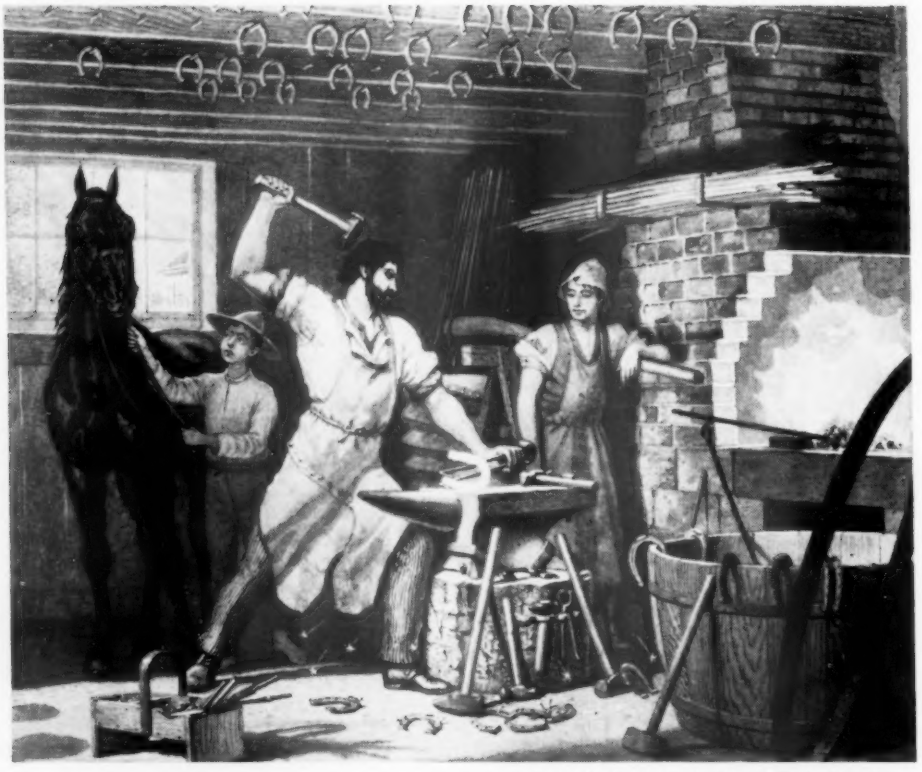
Standardization is one of the important tools of purchasing that is being discovered and applied in many industries with excellent results. A broad view of the subject, presented at the District 9 Conference by the president of the American Standards Association, is presented on page 109. More detailed consideration of its several phases in relation to purchasing practice is included in a roundup of key papers from the discussion panels at the ASA meeting, starting on page 88. Each year, the purchasing viewpoint is more strongly emphasized at these meetings.

Are you making full use of these monthly departmental features compiled especially for the purchasing agent? The **Washington Previews** (page 13) keep you informed on current developments in governmental policy. Another section is devoted to **Office Equipment and Forms** (page 175). Informative **Trade Bulletins and Catalogs** listed on page 19 are yours for the asking. **New Products and Ideas** are also reported (page 128).

COMING—IN NEXT MONTH'S ISSUE

Second Life for Expendable Tools — Handling Cash Discounts

The Future of Purchasing — A Complete Purchasing System



From the Beale Collection of Early Americana

Horseshoe Iron...to Aircraft Steel

Ryerson Completes 110 Years of Service

When Joseph Ryerson opened his first small iron store, 110 years ago, the clang of the blacksmith's anvil was a dominant note in America's metalworking industry. Blacksmiths, boiler makers and other metalworking pioneers were the iron store's first customers. Their orders for horseshoe and boiler iron, axles, plow steel, spikes, etc. formed the basis of our business.

Today that small iron store has grown to be the world's largest steel service organization with fifteen great plants strategically located across the nation.

On the occasion of our 110th Anniversary, we are grateful for our thousands of customers whose orders through the years testify to the Ryerson tradition of trustworthy service. And we are thankful for the privilege of living and working in a free country where initiative and service are rewarded.

From your nearby Ryerson steel plant flows every kind of steel in every shape and size to meet the needs of industry. Ryerson shipments cover everything from structural shapes and plates of carbon steel and bright sheets of stainless to high strength aircraft-quality alloys.

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New Concepts in Purchasing

By W. A. Sredenschek, General Electric Company, Schenectady, N. Y.



W. A. SREDENSCHEK is currently on special assignment with the Apparatus Sales Division of General Electric Company. Prior to this he served as Manager of the Materials and Purchasing Services Department. Up to a few months ago, he was an active member of the Eastern New York P. A. Assn., and a member of the Development Committee on Intra-company Activities in the N.A.P.A. educational program.

Address of the quarterly meeting of the Carolinas-Virginia P. A. Assn., Hot Springs, Va.

A GREAT deal has been written and said about the importance of the purchasing agent in today's economy, but when one analyzes the various new concepts in the purchasing profession, it appears that they all boil down to one basic fact —the purchasing agent is one of the key men in his company's profit picture.

In most manufacturing companies today, at least 40% of the sales dollar goes into the purchase of materials and components. In a good many companies, this percentage runs as high as 70% to 75%. In contrast, the percentage of profit runs from 5% to perhaps 8 or 9%. Thus, it is evident that the purchasing agent has within his power the opportunity to substantially increase his company's profit percentage, or conversely, to eliminate it.

Although the stature of the purchasing profession has increased substantially over the past several years, there are still many unchallenged areas in which much work remains to be done.

There are four major areas in which the average purchasing agent probably can do substantially more than he is doing today to improve his company's position.

I. MATERIALS RESEARCH

During the recent two or three decades, there has been a steady growth trend in our economy.

In the purchasing operation, this has been reflected, of course, in responsibility for obtaining larger and larger quantities of material. During much of this period, there was no real reason for giving serious consideration to the long-range material supply situation in our country. Today, however, we are faced with an entirely different set of conditions. The United States must recognize that it is a "have not" nation for many essential materials, and that it must now look beyond its borders for a growing proportion of its total requirements. Copper, nickel, silver, chrome, iron ore, petroleum, asbestos, and wood pulp are only a few examples. During the years to come, as our economy expands, more and more materials will appear on this shortage list.

Because of this fact, the purchasing agent is now faced with a new responsibility—the long-range appraisal of the world supply and demand picture. This is one of the new concepts in purchasing which we in General Electric call "Materials Research". This is a new function, designed to intensively study long-range supply-and-demand patterns for each of the key materials. These studies show first of all the supply problems of the purchasing agent's own company. Then they expand to include the entire United States, and finally show the domestic supply situation in relation to the over-all world picture.

As an example of what can be accomplished along these lines, Ralph M. Bleak of the Materials Research Unit of our purchasing organization, recently completed a comprehensive ten-year study of the supply-and-demand picture for copper. This study was initiated because, as you all know, we recently experienced a very serious shortage of copper. It was our desire to determine whether or not this shortage could be expected to continue in the future. There were plenty of comments on both sides, but we were impressed with the fact that there was very little accurate long-range information available. Therefore, this purchasing unit proceeded to make a study of the probable demand for copper and the estimated available supply, both domestically and world wide.

A study of this type, slanted to a purchasing viewpoint, is a good illustration of the potential value of Materials Research to a company's planning for future operation.

In carrying on this important activity the purchasing people must also keep other areas of the company, such as manufacturing and engineering, apprised of the long-

range outlook for such materials.

The Materials Research function should not be considered as restricted to these long-range supply-and-demand studies. There are many other services which can be provided, such as:

a) Appraisal of short-term market conditions and notification of interested people in purchasing, engineering and production.
b) Analysis of market price trends and measurement of changes in material costs.
c) Analysis of material availability with a view toward establishing appropriate inventory levels.

These are only a few of the services that are rendered by Materials Research Unit but they will be sufficient to indicate the type of approach that is of growing importance in purchasing.

II. TRAFFIC

The second area that we regard as a new concept in purchasing is Traffic. Because of substantial increases in freight costs, the transportation bill for most companies has grown to one of significant proportions. For example, we have found that the average transportation bill on a ton of coal used in our Company is equal to the price of the coal itself. Too often a purchasing agent is inclined to regard traffic costs as being beyond his control, but this is not so. Actually, we should all adopt a philosophy of "purchasing" transportation the same as we purchase raw materials.

In analyzing your traffic bill, it may come as a surprise to find that during the last six years there have been five general increases in freight rates. This condition has, of course, brought the necessity of examining more closely the transportation costs of purchasing materials. There are several ways in which a purchasing agent can effectively work to reduce his transportation bill.

First of all he can make sure that inbound materials are properly classified. For example, steel shafts classified as generator parts cost $2.14 cwt., but if classified as steel shafts other than crank shafts without fittings, the cost is only $1.90 cwt. Another example is the case of certain switchgear equipment which, if classified as switchboards, costs $3.50 cwt. but if classified as controller parts, the cost is only $2.45 cwt., a saving of 30%.

Secondly, purchasing agents must study their traffic pattern to determine large volume moves so that they can effectively negotiate with the carriers for commodity rates.

Buyers must also keep themselves fully informed of the carload and truck-load minimum weight requirements for each material so that they can weigh volume purchasing at lower transportation rates against the cost of carrying small inventories at the expense of paying higher freight rates.

Packaging is an item that is closely associated with Traffic. While proper packaging will save the contents from damage, any unnecessary weight adds to transportation costs. Therefore, we should study all tools that the transportation companies have placed at our disposal, so that we can have the lowest possible cost of packaging and still protect our product. For example, by changing the packaging of one of our products from a wire bound crate to an all corrugated box, the saving in weight amounted to 18 pounds, or 54¢ per package in freight costs, and a saving in material cost of $2.50 per package.

III. VALUE ANALYSIS

The third new concept is one which has already paid off in our Company. It is a function which we know as "Value Analysis". This is our title for a program in which our purchasing people carefully study the function and intended use of everything they buy, whether it is a material, a component, or a service. In making this study, they search for alternate materials, alternate methods, and new ideas for accomplishing the same end result but at lower cost.

Larry Miles, who evolved this program in our Company, has developed a number of tests which each part and material must pass. It is our feeling that if every material passes these tests, then we are getting the best possible value at the most economical price. Here are a few of these tests:

1. Does the part contribute Value?
2. Does it need all of its features?
3. Is there anything better for the intended use?
4. Can a usable part be made by a lower-cost method?
5. If not a standard product, can a standard one be found which will be usable?
6. Is it made on proper tooling—considering quantities used?
7. Do material and reasonable labor, overhead and profit total its cost?
8. Will another dependable supplier provide it for less?

The Value Analysis program, and the great savings which have been made possible by this approach, have been widely publicized[1], and there is no need to go into the details here, but there are a few points that should be mentioned.

In some cases of changes effected as a result of these studies, we have entered a little into the manufacturing area and in other cases into the engineering area. Nevertheless, our experience has proved to us time after time that it is the purchasing agent who can best initiate complete Value Analysis studies. In the first place the study must be conducted by some one who is thoroughly familiar with potential suppliers and what they can do. Secondly, it must be a person who is in a position to call conference meetings with both engineering and manufacturing people.

Larry Miles has a program under way to train men in Value Analysis for every Purchasing Unit in our Company. It is his philosophy that every cost is too high because it is, of necessity, made up of yesterday's ideas, materials, and processes; that throughout the country men in vendor companies, small and large, are developing tomorrow's ideas, materials, and processes, and that these men want to work on our jobs if purchasing gives them the opportunity. He believes that no one at any time has ever had as great an opportunity to improve the standard of living, to establish sound business and to assure future markets for his company as today's purchasing agent operating in this limitless environment.

IV. INVENTORY CONTROL

The fourth new concept of purchasing involves the responsibility of the purchasing agent in assisting in the control of raw material inventories. The major consideration in establishing raw material inventory levels is the lead time or delivery cycle of the various suppliers. The purchasing agent in his day-to-day contact with the suppliers is in the best possible position to minimize delivery cycle time. In some cases the quantity carried in inventory is in direct proportion to the lead time of that particular material. This means that one-third reduction in a supplier's lead time will result in a one-third reduction in

[1]See PURCHASING, June 1950, pp. 94-101.

(*Please turn to page* 332)

Case history—a prize winning product improvement

The Purchasing Agent's Part in Container Design

By Tom Polglase, Purchasing Agent, Muskegon Mill, Anaconda Wire & Cable Company



P. A. Tom Polglase proudly displays Anaconda's new "family" of molded fibre containers for shipment of magnet wire from the company's Muskegon Mill. He was responsible for initiation and carry-through on the research and experiments that led to the successful development of the improved container.

Purchasing agents are becoming appreciated, more and more, by production personnel—from the "brass" to the cleanup men. Your present-day p.a. is fast earning himself a reputation as a production problem-solver, and he can cite you any number of case histories to prove it. Here's the one that gave me the greatest kick at Anaconda:

One day, a couple of years back, while wandering through the plant, one of the men in the shipping department came up and complained about the weight of the cases of wire he handled (as much as 150 lbs.).

The complaint stayed with us and in spare moments some thought was given to it. Thought finally gave way to further investigation of the problem. It became evident that *everyone* complained about the weight of shipping cases; the warehouse men, the shipping department, the carriers, and the customers. And management complained about freight costs because the cases are returnable, and we pay the freight both ways.

Birth of an Idea

Further thought on the subject brought out a basic idea—*round products should not be packed in square containers!* We were packing round spools in square boxes.

One of the first problems involved in a new shipping container is the item to be packed. Throughout the magnet wire industry, there are dozens of spool designs and sizes. Since the war, we at Anaconda have been working toward standard spools. We now have a "family" of spools particularly designed for packaging fine wire. Knowing that a "family" of spools had been developed, the development of a "family" of cases became possible.

The next logical step makes for an interesting story—and demon-

Before and After

Old-style wooden case, and the radically new container that has replaced it—new in design, material, and closure.







BLUE RIBBON AWARD

Anaconda's new magnet wire container was displayed at the Seventh Annual Industrial Packaging and Materials Handling Exposition, sponsored by the Society of Industrial Packaging and Materials Handling, at the Chicago Coliseum in October, and was awarded First Prize in the general division of the container competition. Purchasing Agent Tom Polglase was called to the rostrum to receive the award by Alvin S. Roberts, General Chairman of the competition.

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strates, effectively we believe, the enlightened era of cooperation between the average p.a. and production. It's the story of Anaconda Wire & Cable Comany's new molded fibre shipping container.

For some time all manufacturers of magnet wire have been troubled by the problem of how to deliver their precious products (magnet wire can sometimes cost as much as $150 per pound) to the purchaser quickly, safely, and surely. For some time wooden containers have seemed to be the answer.

That answer, however, has added up each year to mounting freight charges, to complaints from customers and wholesalers about the heaviness of the wooden cases, to problems in storage, to safety hazards and similar difficulties, many of which are related to the purchasing agent's functions at Anaconda. What more natural, then, than that he should sit down with design men and warehousemen to work up a container that would prove a better answer to these problems in shipping and storage.

Analyzing the Hazards

Our search wasn't an hour old when we realized the wooden box design itself was all wrong; we were trying to ship round objects in square packages. The nearer we could make our new container conform to the shape of the new family of spools, the closer we'd come to our "better answer."

As a start on the problem, the team of researchers working on the project noted down the kinds of damage magnet wire is susceptible to when poorly packaged:

(a) Damage to the spools that carried the wire, by bending or other distortion of their flange ends, would make them play out the wire in a way to damage it, perhaps break it altogether.

(b) Proper storage recommended a clean, dry and cool location. But that was the ideal, and many storage locations in-plant and in the field fell far short of it. The proper "climate" for storage must be built into the container.

(c) No foreign materials should be allowed to come into contact with the wire, or be spilled upon it.

(d) An "open" container would allow the spools to hop each other in transit and damage the magnet wire. The new container must prevent that "hopping."

(e) Moisture, enemy of all wire insulation, ought to be shut out of the container. That called for effective sealing.

Setting the Target

These were thought to be the major causes of damage in transportation and storage. To be wholly efficient, however, the container must meet other fairly stiff specifications that would eliminate, or reduce substantially, the effects of damage:

1. It should be lighter in weight.
2. It must be "returnable."
3. It must not have sharp corners that would injure hands or clothing.
4. Interior packing ought to be kept to a minimum; if possible, dispensed with entirely.
5. Protection for the wire must come from the container body itself.
6. It ought not to be a splinter hazard.
7. The container should incorporate hand holes for easy lifting.
8. Spools in the container should be easy to remove, with no danger of damage to the magnet wire itself.
9. For economy of space, the parts of the shell, upper and lower, ought to be identical. The two halves, brought together, would complete the container. The user would derive added benefit from the identical halves in his warehouse, where removal of the top half would make a tray of the lower half and insure safe, convenient storage and handling.

Pilot Tests

Now a "picture" of the ideal container began to shape itself in the minds of the researchmen at work on the project at Anaconda's Muskegon mill. Ideas found their way onto paper and after several "skull and skill sessions," two original designs were developed: one for a plastic shell container, the other for a molded fibre shell type. Several of each type were fabricated. Together with a couple of wood-box types, they were forwarded to a commercial testing laboratory for exploratory tests.

The report by the laboratory, at the conclusion of the tests, reviewed the kinds of materials tested, the testing devices, results of the tests, and a summary on what the tests indicated.

In this first exploratory series, the materials tested included:

a) Two identical returnable-type nailed wood boxes.

b) Six molded-plastic shells in two grades; three in 4 oz. -30%, the other three in 4 oz. -20%.

c) Six molded-fibre shells.

Before testing, and to insure that moisture content equilibrium could be attained on an absorption basis, all containers were exposed for 24 hours to a controlled atmosphere of 50% relative humidity at 73°F.

The testing devices included a seven-foot revolving steel drum which subjected the container to treatment closely simulating handling during transportation. The drum looks like a large barrel placed on its side. A series of baffles inside the drum causes the container to fall on its various surfaces in succession as the drum slowly revolves at about two revolutions a minute. The number of "falls" the container will sustain before complete failure measures its serviceability. Because the "damage" occurs gradually, weaknesses in design and construction are readily detected.

In a second series of tests, the container is dropped, fully loaded, onto a concrete floor or flat metal base. The container is made to fall on alternate faces and edges, simulating the mishandling it must undergo, frequently, in transit and in storage.

The results of the tests on the 14 containers were tabulated and compared. The laboratory's report on the tests concluded:

"The basic design of the containers was similar. Indications are that, with proper closure, the molded shells can match the durability and retention of contents of the current nailed wood boxes."

Overcoming Weaknesses

Two things in the laboratory's summary comments seemed significant; the phrases "with proper closure" and "can match the durability, etc." Were the two related? Would proper closure result in a molded fibre container that would *surpass* the wood-box and plastic types?

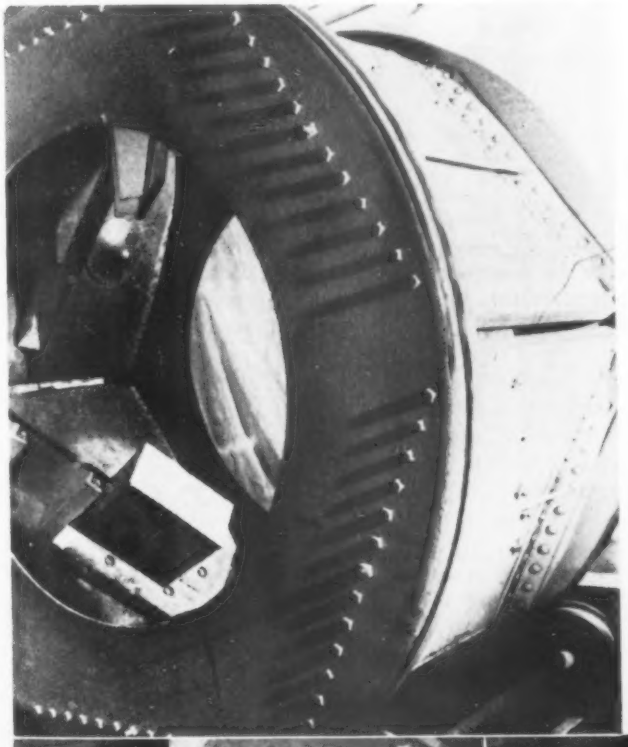
With the conclusions reached from these tests, further development continued. A container merely equal in strength to those currently in use would solve nothing at all. The container itself must be made more durable; its closure, too, must contribute to its durability.

With the container laboratory's test results before them, they worked first at strengthening the fibre shell itself. Different fibre materials were tried; different flange widths were made around the container where the two half-shells met and, finally, various grades of fibre liner were fabricated into each half of the shell.

Closures before had been made in three ways: with pressure-sensitive, filament-reinforced tape, with wire, and some experiments had been made with metal strapping. Fiberglass reinforced tape is not definitely out as a closure. The failures at the Testing Lab were caused by sharp edges of molded *plastic* cases. There is a definite possibility that tape will be used at a future date. The lab report had suggested that the tape wasn't equal to the job, and that three bands of metal strapping, two girthwise and one lengthwise, appeared to provide the best closure for the molded shells.

The Answer is Found

The men at Muskegon followed through on the recommendation in all their subsequent tests—tests that occupied them for almost six months. Finally, they thought they had reached their objective.





The Test Drum and How Containers Survived the Test

The test drum at Container Laboratories, New York, simulates the treatment that a container receives in transit. It has steel sides, baffles, and sharp projecting surfaces. As the drum revolves, the container drops, scraping sides and projections in alternate falls.

Wood box collapses after 64 falls.

Plastic shell fails after 56 falls.

Molded fibre container is pretty well battered after 100 falls, but still protects its contents. Search for a better type closure is being continued.

ADVANTAGES OF THE NEW CONTAINER

1. Damage to wire contents is virtually eliminated.
2. Molded fibre case weighs only ⅓ as much as the wooden cases it replaced.
3. Container conforms to carrier requirements and commodity classifications.
4. Container requires no interior or extra packing.
5. Magnet wire spools are easier to pack and unpack.
6. When opened, the molded cases may be used as a tray for easy handling of spools in the work area.
7. When empty, case halves nest within each other in storage space only ⅓ of that required for wooden cases.
8. Containers are returnable and re-usable, and may be palletized.
9. Lighter tare weight results in a substantial reduction of freight costs.
10. As a result of the closely controlled tare weight, it is now possible for the first time to bulk-weigh magnet wire.

The container they had designed was similar, basically, to those tested before by the laboratory, but with these important differences:

a) The fibre material was stronger;

b) The flanges around the container, where the two half-shells abutted, were shorter; and,

c) There was an inner liner in each shell, a softer fibre formulation, that served as a shock absorber.

The container was well-wrapped and fastened, and was shipped east to the testing laboratory with instructions to "give it a beating."

Beat it, they did. First the container, fully loaded with 8 6″ spools of magnet wire, was put into the revolving drum for ten falls. Result: "No significant damage." Then it was subjected to eight drops onto a concrete floor from a height of 30 inches, normal handling height for a load that heavy (97 lbs). The object was to see how well the side and end edges would stand up under extra-heavy abuse. Result: ". . . . though there was some crushing of the edges of the shell, no significant damage had occurred."

The container was then subjected to a battering that no container ever receives in its normal "lifetime"—90 additional falls in the revolving drum (for a total of 100).

The results: After 30 falls, there was some cracking of the fibre, and some "dishing." After its 68th fall, an additional cracking broke along one "plateau" at the other end of the shell. After 80 falls, the second crack had extended itself somewhat but the container still safely cradled its "cargo."

After the full 100 falls, the drum was stopped and the container was subjected to detailed scrutiny. The laboratory report states: "The fibre shell was still in relatively good condition. Cracking and tearing along one of the "plateaus" was fairly extensive, but the container was still an integral unit and was retaining the spools."

Summary

The tests were not exhaustive Probably the container should have been "rolled" in the steel drum until it had failed completely to do its job of protecting the magnet wire inside. But since containers are rejected by Anaconda long before that stage of damage is reached, the "test to collapse" would have meant little—except as an answer to someone's experimental curiosity. It sufficed that the container met 90% of the requirements originally laid down as desirable.

Any container that looked so radically different from the old style wood box was bound to cause comment, and the story of our search has become common knowledge around the plant. It is common knowledge, about the role played by the purchasing agent in pushing the search through to completion—and we believe it demonstrates the modern age of purchasing—where the p.a. gets an idea and is able to obtain full cooperation from the production men from top to bottom, all working in behalf of better product quality through use of better materials, better work tools and better manufacturing technique.

EASIER HANDLING is demonstrated in Anaconda's shipping room, where the new molded fibre containers are gradually replacing the old-style wood box. Comparable poundage of wire in the new containers stacks only two-thirds as high as with wood. Individual packages are lighter and easier to handle. **REDUCED STORAGE SPACE** is possible with the new container, since the halves "nest" when empty. Old-style wood boxes require about three times the space needed for new design.

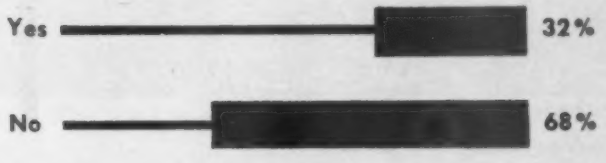




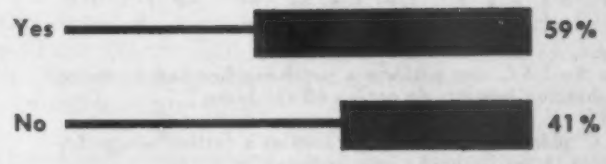
Should INDUSTRY ADVISORY COMMITTEES Be Continued?

Although business sentiment generally is against too close a connection between government and industry, one aspect of the national defense program is looked upon favorably in several quarters. That is the system of Industry Advisory Committees set up by the National Production Authority following the Korean outbreak to maintain liaison between government agencies and various industries affected by emergency regulations. Purchasing agents, whose operations are directly affected by government controls, were asked their opinions on the advisability of continuing the I. A. C. plan.

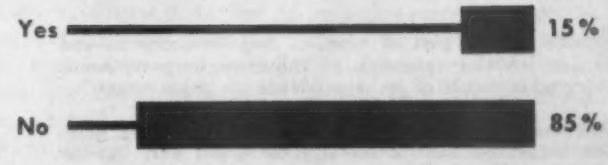
1 Has your company experienced any direct benefit from the Industry Advisory Committee set-up within the frame work of the National Production Authority ?



2 Do you favor continuation of the Industry Advisory Committees even though materials controls may be abandoned, as a means for better coordination between government and business ?

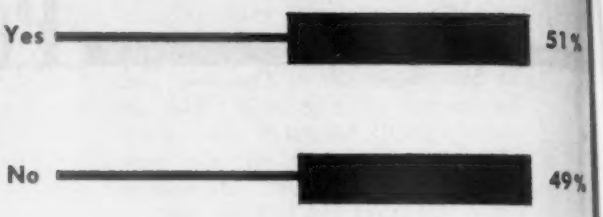


3 In your opinion, should the functions and powers of these committees be changed or broadened in any way ?

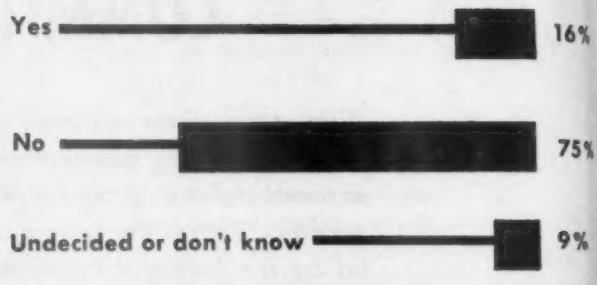


Suggested most often: give the committees more power and more authority to carry out decisions. Others mentioned often: better representation and coverage; smaller groups; use of better-trained personnel; more direct control (e.g. by Commerce Dept.). A number of respondents suggested this change—"Do away with the committees."

❹ Do you feel that the present Industry Advisory Committee arrangement has afforded adequate representation for all members of an industry ?



❺ Do you believe that the I.A.C. plan tends to violate the principles of anti-trust legislation ?



❻ Do you agree with O.D.M. Director Fowler's suggestion that the government create a "civilian reserve corps" of industrial executives who have served in the defense program, to assure their availability in future emergencies ?



WHAT THEY SAY

"Believe the I.A.C. can perform a watchdog function in seeing that Washington bureaus do not go off the beam."

"It (I.A.C. plan) can and may be used as a further wedge for government to get its hooks into business."

"With the growth of trade associations over the past few years, it does not seem so necessary to have a government sponsored program."

"Government's role is that of umpire. Any tendency toward industry's (or labor's) extension of influence in government has the inevitable result of its dependence on government."

"The government has made fair progress in regulating mass production industries, but in our opinion it not only has no solution to the problems of the specialty machine and job shops, but also it has not even a comprehension of their difficulties."

"Essential for industry and its representatives to take an active interest and participation in government to avoid misunderstandings and unjust criticism. Legislation and regulation would be more in line with the good of the nation."

"Believe the plan is working to the benefit of small business and should be continued."

"New and well-trained executives are constantly to be added in industry. This classification of manpower stands ready to aid and assist in any patriotic enterprise, as has been proven a hundred times over."

"How can a few men schedule and allocate a whole industry? Even with I.A.C. and complete cooperation, plans and programs become too inflexible to be workable."

"There should be small, efficient groups, with emphasis on small business."

"The I.A.C. plan has made both industry and government aware of each other's problems. Hope that the active interest in government by industry will limit and reverse the socialistic trend which has been developing."

"Entire plan too cumbersome and costly for any direct company benefits. Should be abolished."

"Complete changes of I.A.C. should be made every two years. It's just good business."

The one sure road to better departmental operation

Analyze Purchasing Procedures

By Clyde T. Hardwick, Assistant Professor, Commerce and Finance, University of Detroit

PROCEDURES have been described as the hyphen that joins persons, places, and functions into one operating whole. Procedures can also be thought of as institutional behaviour rules, i. e., when something happens, you take this or that specific action because you are a member of this or that department of a certain company. For example, when a requisition is received by a buyer, he then goes into the necessary action: analyzing the requirement, soliciting bids, negotiating, and contracting with the selected vendor.

To be useful, procedures have to be proportioned to the need; neither too little nor too much, but just enough to insure the proper action and results. Purchasing operations, like most human affairs, are subject to pathological growth of useless procedures.

Procedures can be written or oral. Written procedures control private business activities just as laws and ordinances control public activities. Unwritten procedures condition business operations similarly to the way in which established customs and traditions govern our personal lives away from business. Consequently, procedures may be called organized rules that regulate the relationships between specialists as well as the movement of materials and the control of finances in an organization.

In a more specific way, business procedures can be explained as internal or company-made regulations, issued by responsible authorities, so as to secure a prescribed, uniform way of performing repetitive operations. Thus, procedures bridge the gap between *decisions* and *operating* actions with definite instructions.

In a summary fashion, purchasing procedures are business rules that stipulate:

—what steps are to be taken,
—in what order,
—at what time, and
—who shall do each phase.

To be definitive, a purchasing procedure can be explained as a prescribed way in which repetitive procurement and allied business operations are *started, carried on, controlled,* and *stopped.*

Need and Purpose

Even with these preliminary explanations, the skeptical person might still ask: Why are procedures necessary.

In a general answer, which is fairly obvious, it might be observed that whenever several or many persons work on a common task, some rules of action grow up to guide the workers. First, let us look at the negative aspects, that occur when adequate rules or procedures are lacking.

Without procedures, workers and supervisors would be required to make repetitive decisions regarding day-to-day work; the logical sequence of tasks would be disturbed; individuals would not know exactly what to do and when to do it; confusion and duplication will prevail, just as society without customs and laws would be chaotic.

The aims of purchasing procedures can be listed in many fashions. For example:

—to routinize operations;
—to provide orderliness;
—to secure uniformity of results;
—to achieve control and coordination with specialized workers;
—to utilize machines and equipment efficiently;
—to conserve the time of supervisors and management;
—to establish a basis for checking the efficiency and economy of operations.
—to raise employee morale;
—to give faster and better customer service;
—to facilitate expansion and changes.

To summarize, these are the factors of purchasing procedural efficiency to be secured and insured by an organized system of procedures analysis.

Scope of Procedures

Business procedures are normally issued for all phases of operations, governing relationships between *personnel,* controlling *functions,* and regulating the use of *documents and forms.* The following major classes of procedures are usually recognized:

1. *Typical industry procedures,* e.g., instructions applying to automobile manufacturing, whether for internal or external affairs.
2. *Organic or functional rules,* e.g., procedures explaining the requisitioning of materials from the stores department.
3. *Managerial procedures,* e.g., orders covering decisions on policy, organizational, or staff matters that guide departmental operations.
4. *Operating procedures,* e.g., those pertaining to purchasing and other "line level" activities, such as the manner of adjusting and recording charge-backs on invoices.

For efficient operation of a modern purchasing system, all four of these

types of procedures must be established and maintained. The scope of procedure activity has many aspects, such as:

a. Initiating instructions for early days of a new assignment. (Temporary or tentative procedures may be most appropriate at this stage.)

b. Settling down to standard procedures for common repetitive tasks.

c. Modifying and improving old procedures, or creating new ones.

d. Installing and weaving changes into old patterns.

e. Following through to insure proper adherence to prescribed procedures.

It is apparent that the preparing of procedures is more than just issuing instructions or designing a form without a plan for continued review and improvement.

Who or what motivates the initiation of a procedure?

First of all, supervisors or executives may suggest or request the establishment of a formal procedure to better handle business operations. In another way, modifications of company policy or organization may necessitate the drawing up of appropriate procedures. New governmental regulations may demand the formulation of new procedures or modification of old rules.

Customers' complaints on service or product may be indications of what procedures need examination. This phase might be enlarged upon to include the investigation of all problem areas in which delays, duplication, or unduly high costs have been found.

Another source of what procedures to study will be found in regular operating or auditing reports.

In addition to these motivating sources for initiating new or improved procedures, one real way is an *organized procedures research plan* which will provide for the routine study of all important purchasing procedures.

The scope of procedures might logically identify the areas of potential savings. *Procedures cost time, energy, and money,* so that *savings will ensue* through the combining of functions or the elimination of unnecessary tasks, records, reports, and forms. Then again, the reducing or elimination of superfluous data or duplicating information should be attacked as waste. Furthermore, efficiency in a procedures system requires the minimizing of unnecessary refinements or elaboration. Any or all of these conditions deserve attention in an organized procedures study.

Guiding Principles

In order to reach into the essential core of a procedural study in purchasing operation and come forth with worthy findings and potentially successful proposals, certain fundamental rules can help the researcher to deal with factual "cause and effect", not just happenings.

1. Study procedures and processes, not jobs or individuals.

2. Determine the purpose and objective of each procedure; then check how well procedures are accomplishing these ends.

3. Examine basic functions first; then break down single operations.

4. Analyze over-all factors that can influence procedures, such as organization and policy directives.



5. Prepare timely and workable procedures that are practicable as to conditions, job requirements, and available resources.

6. Revise and install procedures that fit changing environment and personnel involved.

7 Write up procedures in short, clear, accurate, and unequivocal terms.

8. Arrange and publish procedures in an easy, logical, convenient, and usable form.

9. Persuade and "sell" improved procedures to those who are content with habit and precedent.

Good procedures just do not happen by themselves, nor is it natural for most busy purchasing personnel to improvise good procedures. Actually, a positive program of procedures research in the hands of trained methods personnel is the only sure path to effective results.

It is always tempting, and usually helpful, to set up some ideal characteristics for man-made things. In this spirit, the following list is offered as the desirable criteria of good purchasing procedures:

Flexibility. This feature demands that the procedure can adjust itself to ordinary fluctuations in operating conditions. It is the opposite of rigidity, which calls for revised procedures every day of every week.

Simplicity. Understanding and efficiency depend upon instructions being issued in singular and clear language to avoid further confusion.

Stability. This pertains to the quality of a procedure to maintain uniform results; i.e., a procedure achieves the desired goal even in a dynamic world. When conditions are changed so drastically that procedures cannot be effective, the procedures should be changed.

Adaptability. A good procedure is one that can be modified, enlarged, or simplified so as to fit an expanding or contracting situation.

Sense of Proportion. This means that the procedure is in balance with the task at hand, and it operates efficiently and expeditiously.

Instruments of Procedures

To achieve the expected results, procedures depend on *persons, things,* and *paper.* In other words, the tools or instruments of procedures are mechanical and clerical things put to work by trained persons. Thus, procedures involve both mental and manual factors.

Manual factors may be either office machines or production equipment. Accurate procedures, in most instances, must specifically incorporate the machines concerned. Manual aspects also include forms, records, and reports. Procedures, to be useful, must likewise explain what and how forms and other papers are to be utilized.

Forms, especially, are the indispensable tools of procedures. Investigation of the utilization of forms may lead to the need of corrective procedures. For example, if certain spaces on requisition forms are not being used, or do not contribute to the purpose of the form, then the procedures and/or the form should be changed to fit the needs of the operation.

Effective purchasing procedures can only be achieved by the development and improvement of the

various instruments necessary for the implementation of rules and instructions. Forms control must be carefully integrated with purchasing procedures.

Evidence of Deficiencies

Procedures can become deficient due to the faults of the instrument itself, or the persons using it, or changing environment. Improper procedures can be recognized by such signs as:

—rules or instructions that do not fit current conditions (for example, ordinary procedures may not fit wartime circumstances of government controls);

—procedures that are actually obstacles to operations;

—systems that do not secure adequate data for records or reports;

—delays, duplication, complaints, and confusion.

Efficient procedures are those that preclude all such troubles.

Procedure Manuals

In any organization beyond the smallest single proprietorship, the written instruction seems to be an indispensable means of avoiding misunderstandings and confusion.

Written rules should be limited to important repetitive actions. One-time operations or temporary activity may better be accomplished by oral orders. On the other hand in order to improve procedures, written descriptions and records are an essential beginning. Creating and maintaining a "standard operating procedures" manual provides a sound basis for studying what improvements are practical.

Furthermore, the formalized written procedures tend to be superior to off-hand oral instructions. The very act of compilation usually results in better organized procedures, presented in accurate and understandable terms. Consistent and controllable actions depend on procedures that are definite and clearly understood by all concerned.

Ideal attributes of written procedures would be a presentation that is clear, uniform, consistent, readily amenable, logically arranged, and currently up to date. Procedures that are just "a little out of date" are like being "a little dead". Procedures that are only partly understood are easily misconstrued or misapplied, which means inefficient performance.

The most common objection to a formal procedures manual is that it might "freeze" present methods and thus preclude progress. The acceptable manual will never do this, because it must provide for systematic changes that are easily and quickly made. Timeliness is the first rule of proper procedures. A good manual must provide for the returning or destroying of obsolete procedures. Operating employees can be encouraged to suggest needed and desirable improvement by means of simple form for submitting ideas.

Understanding the utility of a standard procedures manual will usually justify its creation and maintenance. There are at least five major uses of such a manual:

1. *Operating effectiveness* can be better secured through better understanding and communication.

2. *Control* of workers and supervisors will be improved by setting forth exactly what should be done.



3. *Training* of employees will be facilitated.

4. *Evaluation* of performance is placed on a sound basis when you spell out what is expected.

5. *Revision* and expansion of operations is facilitated by the establishment of accurate records of experience with former methods.

A good procedures manual sets forth a system. The word *system* implies the collection of related procedures, developed with a view of securing an integrated approach to the performance of a major activity such as a purchasing or stores department. Without the preparation of a coherent manual, procedures issued individually and without consideration of interrelated instructions, result in duplication, contradictions, and confusion.

Procedures can be set forth in *text* or in *graphic* (flow chart or diagrammatic) form. Both means are practicable, and they can be used in a complementary fashion. Regardless of what means are employed, written procedures should be prepared according to logical arrangements, major groupings, cross reference of topics, and codification or positive identification by numbers, letters, or symbols.

The essential purpose in any case is *communication*. Consequently, what method will be most appropriate will depend on business circumstances, employee attitudes, and experience. Furthermore, the size of the organization, and the expense in relation to the job to be done, should also be considered.

The one best means of communicating the procedures for all organizations cannot be categorically stated. In many concerns, more than one means has been used successfully, in combination. For example, general procedures may be presented in an orderly, loose-leaf text arrangement, together with illustrative flow charts, for supervisors; at the same time, instruction cards for specific operations are prepared and assembled for operating employees. In general, any systematic arrangement can be made to work, so long as procedures are clear, easy to use, and can be quickly and currently revised. To assist users, a standard format should be designed, so that each employee knows where to look for desired information.

Obstacles to Improvement

Successful research in procedures frequently has to overcome certain obstructive human traits such as indifference, inertia, resistance to change. Also, some supervisors may reveal a desire for security or a tendency to be over-cautious by creating excessive controls to protect their actions.

Some other common barriers to improving procedures are:

— lack of knowledge of potential savings;

— lack of "know how" to improve;

— lack of understanding of efficiency;

— lack of time for studying procedures;

— lack of personnel for research;

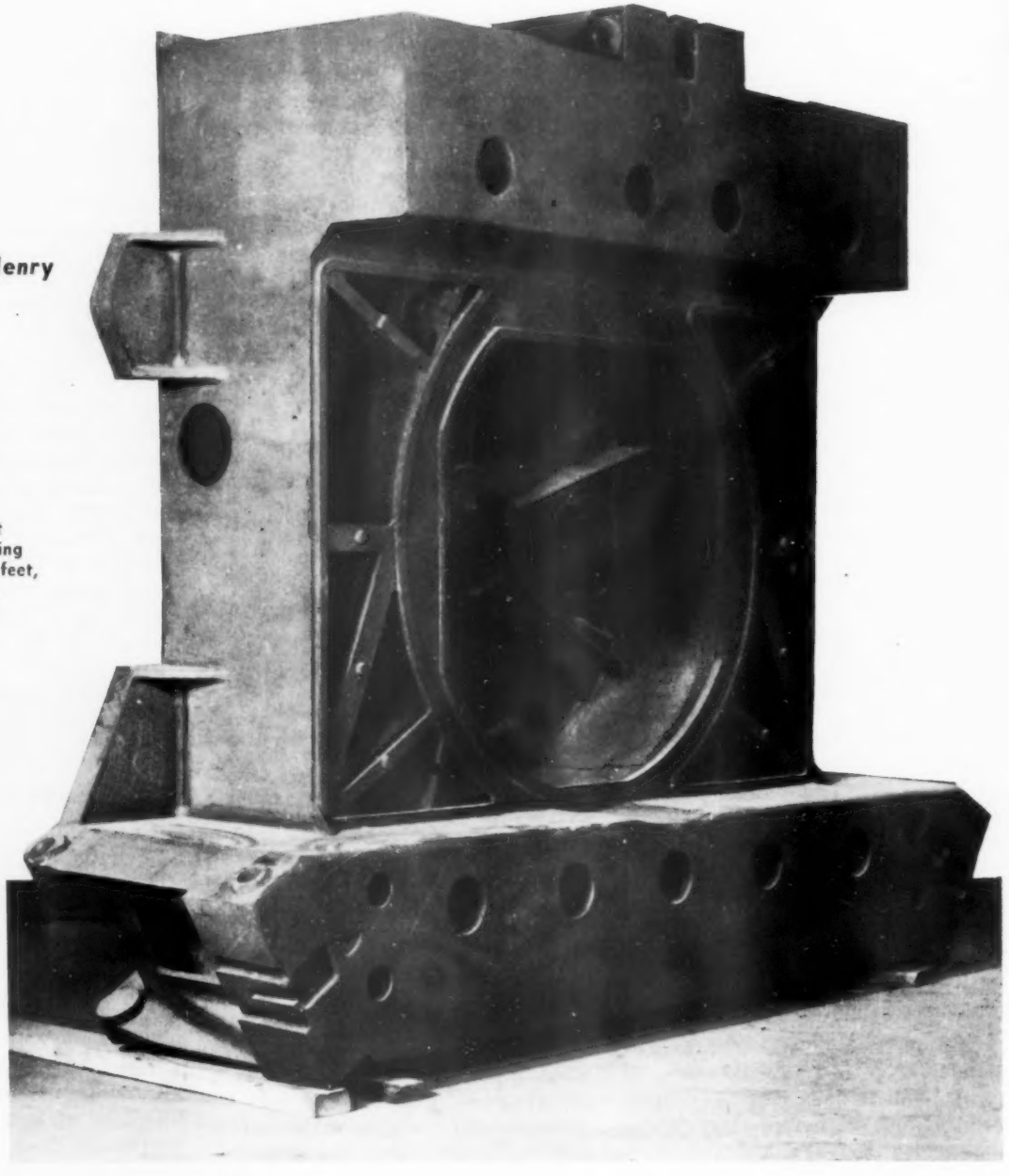
— lack of ability to discover or recognize "hidden wastes".

One additional obstruction which is not so easy to identify in every case, but which is very real, is the

(*Please turn to page* 322)

430 Plant Visits in One

By George E. Henry



World's largest magnesium casting —10 x 10 x 3 feet, 1,630 pounds.

THE utilization of hot sapphires to determine metal hardness, carbon dioxide as a machine tool coolant, exercising of metals to make them strong, and the use of echoes to determine the elasticity of metal, were among the interesting technological developments uncovered by speakers at the 34th Annual National Metal Congress and Exposition sponsored by the American Society for Metals, which was held in Philadelphia October 20-24.

Acclaimed the largest of its kind held in this country, the industrial exposition was made up of more than 430 exhibits occupying almost ten acres of floor space. It was a most impressive exposition of American ingenuity and American industrial power for utilizing and fabricating metals. It is estimated that 75,000 people visited the exposition.

The technical sessions of the Congress featured 32 papers on advanced metal science and new development, designed to keep metals engineers abreast of the developments in industry and to furnish

exchange of ideas on the various problems of working with new tools and new metals under the mechanical stresses and temperature extremes typical of the jet and atomic age.

The industrial exhibits were of outstanding interest, presenting materials, methods and equipment in the following classifications: Producers of Metals and Alloys; Metals Manufacture and Refining, Casting and Forging; Metal Components; Tooling; Heat Treating; Temperature Indicators and Fuel Controls; Welding and Associated Processes; Cleaning and Finishing; Testing and Inspection; and general industrial equipment.

Technological findings and advances in the fields of metallurgy and metal working were announced by several speakers. Scientists from the Naval Research Laboratory, Washington, told how they broke down 52 metal grains in a circle measuring ¼" in diameter to 55,100 grains for the same area. The process was achieved by vacuum annealing and cold rolling to make metals harder and tougher for armament, monel (an alloy of nickel and copper) being used for the experimentation. They stated that grain size has a profound influence on the time it takes for monel to rupture, creep, or otherwise wear out. Speakers from United States Steel Company's research laboratory at Kearny, N. J., stated that current restrictions on elements ordinarily used in conventional stainless steels rapidly are being surmounted through extensive metallugical experimentation. Practically every modification in metals brought about by restrictions or stringencies, is subjected to laboratory analysis and exhaustive testing prior to being applied.

Case hardening of stainless steel through absorption of high purity graphite under high vacuum and pressure, was the subject of a paper by a metallurgist of the Superior Tube Co., whose discovery may lead to a new method in achieving hard-surface for alloys in steel plants. Depths of carburization were found to be from .004 to .014 inch.

The use of electronmicrography to determine the presence and shape of austenitic and sigma particles in chromium-nickel-molybdenum-titanium steel used in aircraft, was described by two British scientists. These particles, they pointed out, cause embrittlements which lead to fractures.

Two speakers for the Crucible Steel Company said that too much silicon keeps ordinary steel from attaining the extreme hardness required for many military and civilian applications. In a paper on "modern blacksmithing", it was explained that the inclusion of any one of the following—silicon, manganese, chromium, nickel, carbon or nitrogen—caused the molecular arrangement of stainless steel to start shifting and reorganizing itself at lower temperature than otherwise in effecting hardness.

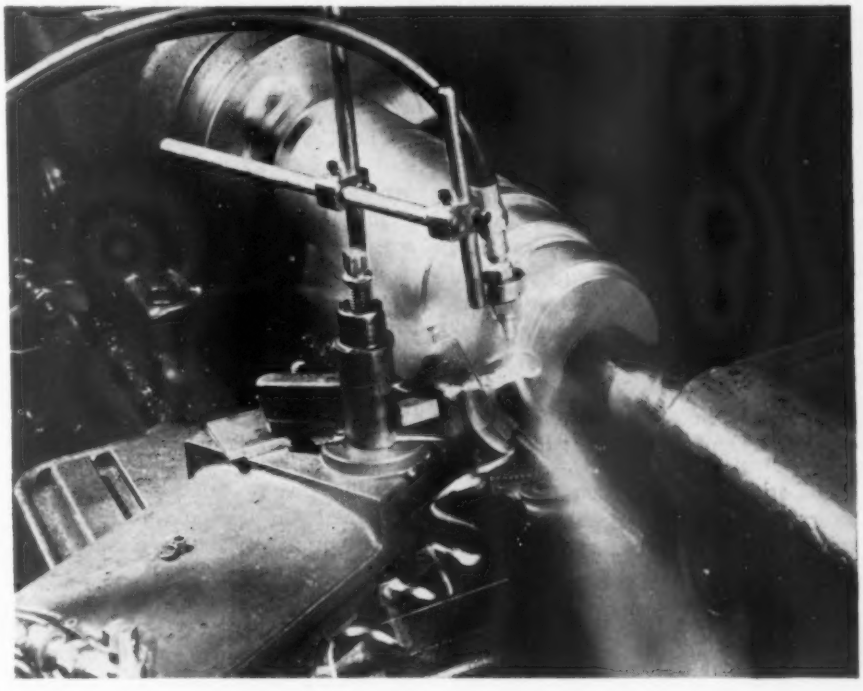
Two Timken metallurgists reported that boron is coming into wide use for hardening steel alloys, because of the restrictions slapped on other case hardening materials. A metallurgist of the U. S. Steel company advocated silicon and sulphur as elements to increase machinability of certain steels which are hard to cut.

Warning: Don't go around testing steel with your teeth. It might contain arsenic. Two Midwest metallurgists set forth that arsenic combined with indium gives steel a high melting point approaching 1726° F. While the green poison is not now being used extensively, the Army and Navy want metals to withstand the high heats of jet engines and rockets, and it was indicated that the two elements may come into general usage.

Metal engineers scratched their heads when three Chrysler metallurgists told of their laboratory experience with a steel which wouldn't change its endurance personality. They gave different furnace treatments to three batches of the same chromium alloy, and the metal evinced the same endurance under repeated impacts. The three treatments, respectively, effected standard embrittlement at room temperature, and extreme ductility. Impacts were administered at room temperature, at a synthetic temperature of 35° F, and below zero, and all specimens broke down under the pile-driver blows at the same scientifically measured degree of impact.

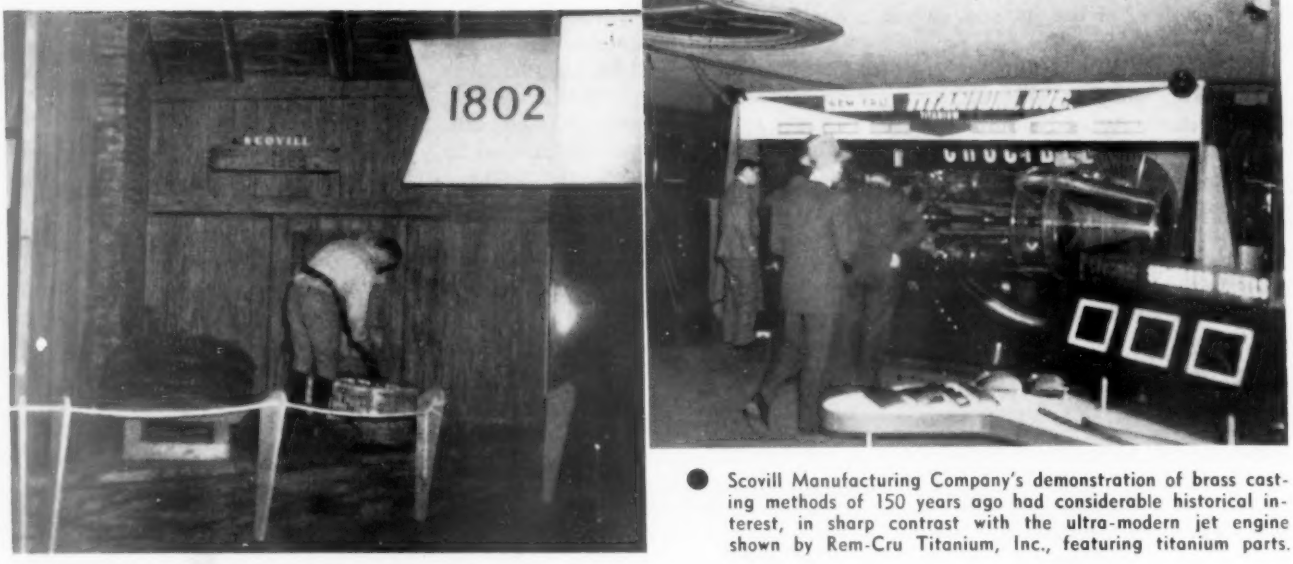
If you want to find out what elastic metal is, apply the echo test, technically known as the ultrasonic impulse technique. A Knolls Atomic Power Laboratory scientist explained how much each tiny sound-effect bounces back and forth among a metal's molecules until exhausted. Each echo in its travels displaces molecules. If the molecules are non-elastic, the travel is slow. If ductile, the speed is expedited.

Again, if you want to test the "hot hardness" of metals, get some



Carbon dioxide being used as a coolant. It vaporizes quickly, leaving no residue.

The past and the future



● Scovill Manufacturing Company's demonstration of brass casting methods of 150 years ago had considerable historical interest, in sharp contrast with the ultra-modern jet engine shown by Rem-Cru Titanium, Inc., featuring titanium parts.

hot sapphires. U. S. Steel experts told of heating sapphires to 1500° F. for use as indenter tips in "hot hardness" tests. Being as hot as the test specimens, the sapphires did not appreciably cool the metal when making contact. Diamonds were tried, but disintegrated after a few experiences with the glowing red ingot at temperatures above 1300°F.

Exercise gives metals, as well as humans, the qualities of endurance and hardness, according to Jones and Laughlin research engineers. To exercise steels, they clamped metal specimens in tensile testing or torsion apparatus, inflicting mechanical stresses at repeated intervals for six months on a test piece. The exercises are begun gently but are increased in scope as the training period goes on. Greater degrees of yield elongation and return to original size, they said, could be noted after six months of the treatment.

The foregoing recites a few of the highspots set forth in the Conference proceedings. The exhibits also were the source of varied new developments in materials, tools methods and equipment spread throughout the exhibit acreage.

Allegheny Ludlum announced a new metal—its Metal-TRC, a chrome manganese-iron alloy born of the nickel shortage. It is felt that the new alloy will be suitable for many applications where 18-8 has heretofore been used. Laboratory tests indicate that its corrosion resistance lies between type 430 and type 301.

The Carpenter Steel Company in its Steel Parade included such products as Carpenter Stainless 20, a sulphuric acid resistant alloy. In one test, this stainless gave 256 days' service without corrosion as compared with four days failure of Stainless Type 316.

Another Carpenter products was Stainless No. 10, which is unique in its ability to be cold upset with very little work hardening, and which for the first time makes possible the production of severly deformed stainless cold headed parts such as nuts and bolts, on automatic transfer presses.

A third new development featured in the Carpenter exhibit was the application of the rare earth cerium. By adding small amounts of this element, highly alloyed stainless and heat resisting steels, previously difficult to forge and hot work, are much easier to fabricate. It substantially increases the yield of these strategic alloys.

The exhibit of the Osborn Manufacturing Company presented the company's Work-hold brushing lathe for deburring gears. This new machine eliminates hand deburring —filing, etc., producing clean, uniform results. Osborn also showed the "packaged" Heli-Master brush assembly which was developed as an accessory in pickling and descaling operations. It is designed for quick and accurate set-up and removal with minimum machine downtime.

The Cincinnati Milling Machine Company made the first showing of Flamatic Surfacing hardening with natural gas, which was demonstrated in production on a customer's job. The new machine permits the user to employ the most economical fuel for his own requirements—either acetylene, propane, natural or manufactured gas, and thus achieve substantial savings in both installation and operation costs.

Air Reduction announced the Automatic Heliweld Hardfacing Process, using the standard automatic Heliweld head and a unit for feeding bulk tungsten carbide. In operation the Heliweld arc melts the base metal, producing an elongated pool, and the tungsten carbide particles are poured into this pool behind the arc, rate of speed being electrically controlled. Tests have shown that the abrasion resistance of deposits made by this process is considerably greater than that attainable with other arc methods.

The Pure Carbonic Company, a Division of Air Reduction, demonstrated the use of Carbon dioxide (CO_2) as a machine tool coolant in turning, milling, boring, drilling, tapping and broaching. The refrigeration effect is obtained by releasing the high pressure carbon dioxide (850 psi at 70°F.) to atmospheric pressure through a suitable nozzle. Various nozzles are available to produce desired spray patterns such as cone, fan, or pin point. At the exhibit, CO_2 was demonstrated as a coolant for a single point, sintered carbide tool mounted on a standard lathe, cutting Type 304 stainless steel. Good

visibility of the work, lack of contamination of salvageable chips and lack of a coolant disposal problem were obvious.

A remarkable development in spray painting was demonstrated by the Ransburg Electro-Coating Corporation at its display. Here the electrostatic spray painting of two different colors at the same time—white washing machines on one side and red coin banks on the other, with only eight feet of space between the two operations, was shown. No conventional spray booth is used. The paint is atomized by a powerful electrostatic field, and the electrically charged paint particles are attracted irresistably to the work without overspray loss. Only one operator is required; rejects are negligible; less floor space is required; maintenance and clean-up are about 90% less than with conventional methods; and it was stated that the method coats three to four times as many products per gallon of paint as compared with hand spray methods.

The new Hi-Jet method and Gulf Hi-Jet Oil, a twin development of the Gulf Research Laboratories, were demonstrated by Gulf Oil Corporation. Small high speed jets of a special oil are directed from below the tool at the line of contact between the work and the cutting edge. Part of the oil is forced past the cutting edge and is caught between the chip and the tool. The tool is efficiently lubricated, and heat transfer from the cutting edge is greatly improved. Tool life has been increased 6 to 12 times at normal cutting speeds, and at low speeds cutting rates have been doubled without any sacrifice in tool life.

The Gray Iron Founders' Society had an exhibit of more than 100 examples of coated castings, featuring metallic and non-metallic surface treatments of gray iron. Processes represented included metal-spraying, hot-dipping, hard facing, electroplating, painting, enameling, etc. The purpose of the exhibit was to demonstrate practical methods of treating surfaces of castings to resist wear, heat and corrosion, as well as to enhance the appearance of the castings.

General Electric had on exhibit its new non-synchronous control with added heat and up-down slope control panels for welding operations. The slope control improves weld quality, reduces electrode tip pickup and lessens possibility of shrinkage cracks. Slope control also increases weld uniformity on multiple projection welding.

The "world's largest magnesium casting" was on display in the Rolle Manufacturing Company's space. The casting is a base plate for radar guided missile control mechanism, and weighs 1630 lbs. In aluminum the casting would weigh 2000 lbs., and in steel about 7300 lbs.

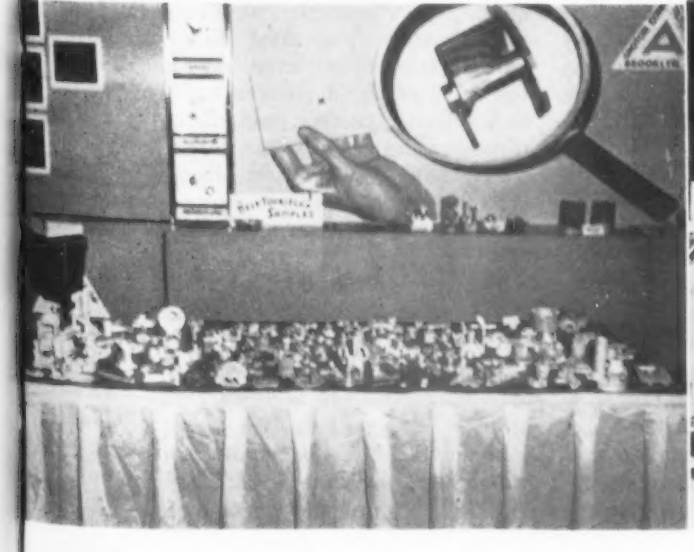
Westinghouse Electric Corporation displayed a new 25 KW RF generator for induction heating and a gas fired pit furnace for carbo nitriding, carburizing, nitriding, normalizing, etc., featuring positive directed fan circulation in heating chamber, and positive atmospheric lock to maintain low dew-point in main chamber. Advantages of the new furnace include flexible operating, rapid heating, and rapid cooling.

A mass production rotary shell molding machine was exhibited by Mechanical Handling Systems, Inc. Its operation is completely automatic from sand blending to finished molds, completed molds being delivered at the final station at the rate of eight per minute.

Flame-Plating, a method of applying thin metallic coatings such as tungsten carbide to metal parts, was demonstrated by the Linde Air Products Co. It represents a new development in the metalworking field wherever abrasion or frictional wear is a problem. The deposit is made in the form of a hard, wear-resistant coating that is applied in thicknesses ranging from 0.0005 in. to 0.020 in. One of the advantages of the new process is that the temperature of the base piece does not exceed 400°F. during the plating operation, even when tungsten carbide is applied. This practically eliminates any possibility of a change in the properties of the base metal, and reduces to a minimum the chances that the piece might warp. For this reason the process is well suited for precision parts where only extremely small tolerances are allowable.

Titanium, beryllium, tin, copper alloys, zirconium, stainless steels, precious metals for industrial use, were the subject of interesting displays. In the metal components field, there were showings of forgings, extrusions and stampings, powder metallurgy and ferrous and non-ferrous tubular products.

Several companies exhibited intricate small parts produced by precision investment casting.



Ductile iron conveyor made for the paper industry, displayed by the International Nickel Company.



A trade name describes, but does not warrant

Ordering by Trade Name Or —for End Use

. . . In the one case, the buyer relies on his own judgment as to fitness; in the other case, he relies on the seller's warranty

By Albert Woodruff Gray

IT is a legend in legal circles that John Marshall, when he was Chief Justice of the Supreme Court in the days of President Jefferson, after listening to the argument of a case, would say to an associate, "I'll tell you the law, Storey; it's your job to find the authorities."

A law that has been enacted as a statute in thirty-four of the states, besides being laid down as a principle in the decisions of the courts in the other twelve, is that, "In the case of a contract to sell or a sale of a specific article under its patent or other trade name, there is *no implied warranty* as to its fitness for any particular purpose."

This statute is the law but its interpretation has been made by the decisions of the courts of every state in the country.

A Wisconsin firm engaged in highway construction sought a rock crusher of greater capacity than the one they had been using. The firm gave an order to an equipment dealer in Minnesota for "One No. 3 M 9 x 16 Universal crusher with 18-foot G elevator mounted on a 12-foot goose-neck medium truck," paying $1,000 down and two notes aggregating $717.80 for the balance.

Three weeks later an 8 x 16 instead of the 9 x 16 crusher was delivered. A man was sent later by the manufacturer to remedy the mistake by changing the back jaw of the machine and the pitman or part operating this jaw.

The buyer wrote the dealer, "The manufacturer sent a man out to fix the crusher. He put in a different jaw. It is the full width now, but it is not the crusher we ordered by putting in that jaw."

The buyers however, continued their use of this crusher on the road contract, having sold the machine they had formerly used which this crusher replaced. The two notes nevertheless remained unpaid, and when they were three months past due, suit was brought for their collection.

The defense of the purchasers was that they had relied on the skill and judgment of the dealer that the crusher would be reasonably fit for the purpose it had been purchased and that it would crush with the same labor more than twice as many rocks as the 8 x 12 crusher they had used. This the court held was no defense to the demand for the balance of these two unpaid notes.

"The description in the order was of an article with an established trade name. The sale of it therefore brought it within the statute, 'In the case of a contract to sell or the sale of a specific article under its patent or other trade name, there is no implied warranty as to its fitness for any particular use.' The machine having been sold under a particular trade name and description, it was plainly incumbent on the buyers to show that the crusher they received was *not the one ordered*, and for want of such showing there is no defense to the notes."

This immunity of a dealer vanishes, however, like a ghost before the dawn, when his judgment and experience is enlisted by the purchaser in the selection of equipment, and when the buyer's choice is not guided solely by the patent or trade name but by the seller's advice.

A contractor some years ago undertook the grading of a portion of roadbed of the Rock Island Railroad. The salesman of a construction equipment manufacturer recommended to this manufacturer that he use on this job machines described as "dumptors" for transporting grading material, and two of these dumptors were bought.

They were delivered and put into operation on May 5th. That day trouble started and continued until the 25th, when the contractor notified the manufacturer he was through and would have nothing further to do with these dumptors and that the manufacturer get his property before the contractor left camp.

Three months later this contractor sued to recover the money he had already paid on these machines and for the cancellation of the notes for the unpaid balance of the purchase price.

In its defense the manufacturer maintained that the dumptors the contractor had purchased were spe-

cific patented articles designated by a patent or trade name, and that there could be no breach of warranty under such circumstances.

Holding that there was here a breach of a warranty of the fitness of this equipment for the purpose it had been acquired, the Iowa Supreme Court said:

"The rule contended for by the seller is not in our opinion applicable to the facts of this case. While it is true as a general rule that the sale of a specific patented article known to the trade name under its patented or trade name does not include an implied warranty as to its fitness for the purpose for which the purchaser expects to use it, the mere fact that the subject of the purchase is a patented article does not bring it within the rule.

"The fact that an article has a trade name does not negative the existence of an implied warranty of fitness for a particular purpose when it is purchased, not by name, but for a particular purpose and supplied for that purpose. And where the buyer relies, not upon the trade mark but upon the seller's judgment, there is an implied warranty of fitness for a particular purpose."

A cotton fabric printer in Liverpool, England, over a hundred years ago ordered by its trade name "Ollivant's Patent Printing Machine", saying that he wanted a machine of this type for printing colored fabrics. Later, when the buyer failed to pay for the machine, the manufacturer sued for the money. The defense was that the machine had failed to fill the purpose for which it had been bought, the colors running and spoiling the work.

The English court, holding the manufacturer entitled to the price of the machine he had sold, said:

"If the patented two color printing machine was a known, ascertained article, the purchaser, having ordered one, must pay for it whether it answers his purpose or not. But if it was not a known, ascertained article and the purchaser ordered the machine for printing two colors and the manufacturer undertook to supply it, he could not recover the price unless the machine was reasonably fit for the purpose for which it was ordered."

This the court supplemented with the comment, "It appears to me to be a distinction well founded both in reason and on authority, that if a party purchases an article on his own judgment he cannot afterwards hold the seller responsible on the ground that the article turns out to be unfit for the purpose for which it was acquired. But if he relies on the judgment of the seller and informs him of the use to which the article is to be applied, it seems to me that the transaction carries with it an implied warranty that the thing shall be fit for the purpose for which it is designed."

The conclusion of law in this case, based as it is on the decisions of courts for years, was repeated in a recent decision of the Supreme Court of the State of Washington.

The purchaser of a truck and hoist, in this instance, sued to set aside the sale and to recover the amount already paid. The equipment had been used in hauling and spreading gravel on a highway construction project of the Federal Government. In the sixty days it had been operated, the truck had broken down three times.

The purchaser when he bought the equipment had told the dealer he wanted a truck equipped with a hoist and a body of special size. Deciding in favor of the dealer and holding that he was not liable to the purchaser for any expenses or repairs he might have incurred, the court said:

"The case falls within the generally accepted rule that where the buyer enters into an executory contract for the purchase of goods exactly described or makes an executed purchase of such goods, he cannot hold the seller even though the seller be the manufacturer of the goods, as warranting that they are fit for any more special purpose than that which merchantable goods of the agreed description necessarily fulfill. By exactly defining what he wants, the buyer has exercised his own judgment instead of relying on that of the seller."

An outstanding legal authority has written of this rule, "There will be no warranty of fitness implied although the use be known and the seller is the manufacturer, where the buyer has expressly specified the quality, dimensions or characteristics which the article to be supplied shall possess, the materials of which it is to be made, or the method by which it is to be produced.

"The buyer here evidently relies upon his own knowledge or judgment and not upon the judgment, knowledge or experience of the seller. In all these cases if the buyer doubts the efficiency of the article which he orders or is unwilling to rely upon his own experience or knowledge, he must exact an express warranty, none will be implied."

This principle of law was firmly established in this country over half a century ago by a decision of the Supreme Court of the United States. In that instance a purchaser had signed a sales contract for a specific article described in the agreement. When the manufacturer sued to recover the unpaid balance of the price the purchaser rested its defense on the claim of a breach of warranty by the seller.

The summary of the law in the decision of this case follows that

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"Out of the groove" for broader service

Company Plays Dual Role of Processor and Distributor

By Paul V. Farrell



Teamwork. Special jobs start with a careful analysis. Here Superintendent Arthur Iversen, Sales Manager Willard Bargar, and Executive V. P. Herbert Barchoff confer on an order before putting it in production.

THERE'S a new dimension developing in metal warehouse service which is helping purchasing agents overcome materials restrictions and meet increasingly exacting production demands quickly and economically.

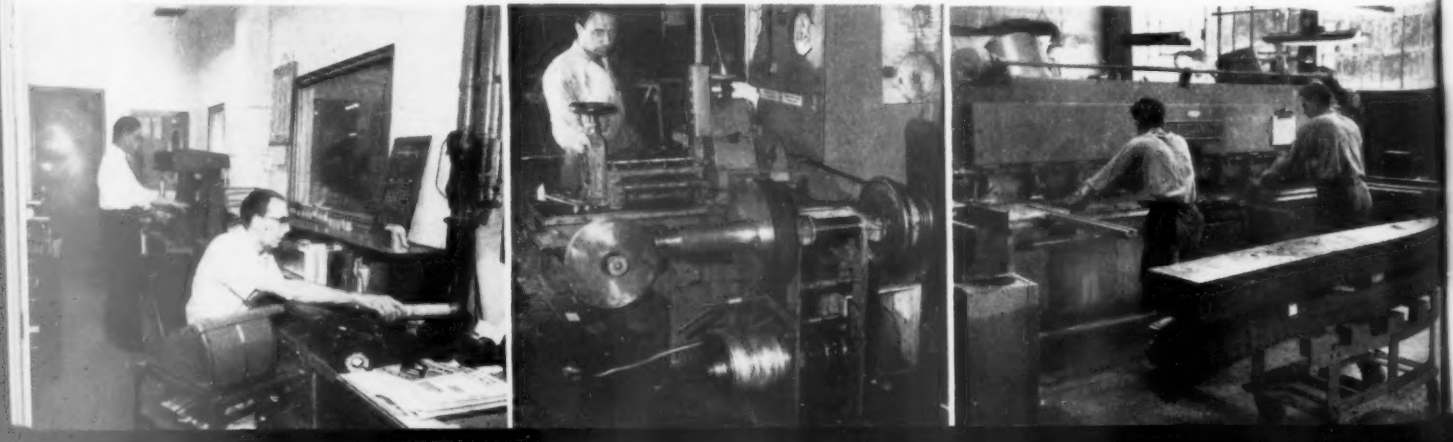
Traditionally, metals buyers have used warehouse purchasing to get quick delivery on day-to-day needs, to keep inventory at a minimum, and to obtain special shapes without having to invest in costly machinery. Now refinements of these basic services, additional equipment, and new techniques have enlarged the scope of warehouse service to where it supplements and parallels normal mill functions.

With them, the warehouse is able to keep pace with the special requirements of the highly automatic machinery that is coming into greater use in industry. In addition, it can help a customer avoid production delays and beat materials shortages by processing his obsolete or surplus supplies so that they have desirable gages and tempers for specific uses.

An outstanding example of this changing role of the metal warehouse is Eastern Brass & Copper Company, of New York City. Started almost half a century ago as a metal stamping and spinning company, Eastern has developed a type of operation which is midway between the accepted functions of a mill and of a warehouse. At the same time, it continues its warehouse function of representing leading mill sources of the country.

Believed to be the only warehouse in the country with a 4-high rolling mill and a controlled atmosphere annealing furnace, Eastern also is equipped with the latest shearing, slitting and cutting machinery, with special modifications to meet the most precise demands of steel or non-ferrous fabricators. A most important factor in its ability to do this is the highly developed warehouse machine shop that performs high echelon maintenance on the equipment, modifying and adapting it to meet special needs. (Signifi-

(Left) Quality control and production control room, overlooking the processing floor. A pneumatic tube system carries orders from the sales office. (Center) Slitting narrow width brass. Machine adaptations by Eastern's own staff result in precision exceeding the most rigid ASTM standards. (Right) One of a battery of shears. This one is capable of shearing all types of metal up to 144" long and ½" thick. Modifications for special jobs are developed in the shop.



cantly, several of Eastern's own competitors send their slitter knives to its machine shop for sharpening.)

Typical purchasing problems solved by use of Eastern's facilities and skills illustrate the great advances made in warehouse service.

The purchasing agent of an electronics assembly manufacturer was buying carload lots of metal from mills, in the closest width tolerance they could furnish. The metal, however, would constantly run slightly oversize for this very exacting requirement—a normal condition under "commercial" standards of precision, but one that continually jammed up automatic high-speed equipment in the buyer's plant. Even at premium prices, metal of the required precision could not be procured from the mill sources, and the company faced the prospect of broken punches and dies and repeated expensive shutdowns. When the problem was brought to Eastern, the warehousing firm was able to slit hundreds of thousands of pounds of the metal so exactly that no further trouble was encountered. Special modifications of slitting equipment made the job possible.

Another tricky job called for slitting .005″ thick rolls of Sil-Fos brazing alloy to a width of 1/16″. The job was accomplished, and within tolerances of *plus or minus .00025″*.

Speed was the most important consideration when Eastern had to turn out specially shaped aluminum blanks for use on combat planes rushed back to the United States to be converted to rocket bombers during World War II. The speed was obtained—and so were substantial savings. By modifying a conventional jig on its shear, Eastern was able to produce the blanks quickly and avoid the expense of a complicated special die.

Technological progress and the rearmament program have both created inventory problems for the purchasing agent, but in many cases one difficulty may hold the solution to the other—thanks to the unusual warehouse processing methods now obtainable. For example: a leading business machine manufacturer was being held up on a defense order by a shortage of a precision steel that would not be available at the mills for months under the allocations system. Eastern took from the firm's inventory other steel that had been made practically obsolete by design changes, rolled it to the proper gage, annealed it to the proper temper and sent it to the assembly line to complete an important job which might have been delayed indefinitely.

A cigarette lighter firm had two carloads of nickel silver sitting in inventory in unusable size. By having it rolled and annealed, re-rolled and re-slitted, they were able to put it into production of various items.

Eastern quotes T. E. Veltfort, head of the Non-Ferrous Scrap Association, to show that similar arrangements can be worked out for many firms. Mr. Veltfort has said that 50% of the "scrap" now lying around actually consists of metal no longer suitable for defense production, or originally ordered for civilian products which cannot be manufactured because of restrictions. Much of this metal can be rolled to proper gage for other uses, its temper protected at each stage by correct annealing. Further, the controlled atmosphere annealing allows Eastern to take narrow widths and obtain bright finishes without danger of scaling.

Eastern backs up its unusual physical facilities with these definite policies: special training of personnel; incentive awards for suggesting processing improvements; willingness to process metal not bought out of its own inventory; constant working with purchasing departments on the solution of unusual problems, often involving plant visits and inspections of equipment by purchasing agents.

"In nine out of ten of the top level firms we have as customers," says Eastern's executive vice-president, Herbert Barchoff, "we deal directly with the purchasing department. There's mutual recognition of what can be done, and will be done by each of us to solve a particular problem by working together. The days of 'clever', high-powered salesmanship are gone."

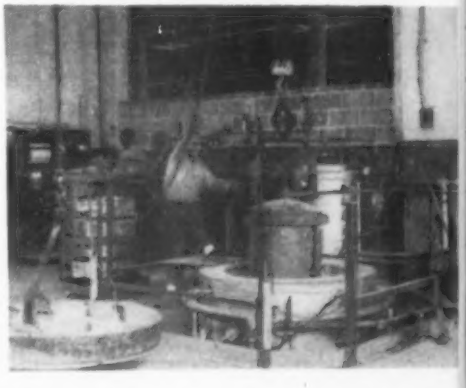


Corner of the processing floor. 17,000 sq. ft. of additional space are now being added to the original plant. The entire area is serviced by an overhead crane system.

Special equipment is designed and completely built in the shop, and is production tested before being moved out to the processing floor. This machine, with built-in cooling system to insure uniform gauge, round-edges, pinch-passes, edgewise straightens and flattens in a single operation, handles either coils or flats.



Controlled atmosphere annealing furnace takes ammonia through a dissociator at 1750° F, converting it into a balanced hydrogen-nitrogen atmosphere. Metal annealed by this ultra-modern process is scale-free and needs no pickling.



Comprehensive round-up of practical, profitable experience

A Symposium on Standards and Purchasing

THE Third National Standardization Conference, sponsored by the American Standards Association, was held this year in connection with the Centennial of Engineering. Two sessions of particular interest and importance were those conducted by the N.A.P.A. Committee of Standardization, stressing the advantages and use of standards as a tool of procurement, and by the Chemical Industry Coordinating Committee of ASA, presenting the viewpoints of users and suppliers in an industry that has historically been reluctant to accept the principle of standardization but has recently discovered important areas in which standards can be of major benefit to all concerned. Key papers from the Conference are presented herewith in the form of a symposium giving a broad view of the subject from any angles.

Standardization Comes of Age . . . . . By Joseph W. Barker

President and Chairman of the Board, Research Corporation, New York

SINCE 1910, this nation has increased its supply of machine power 4½ times. We have more than doubled the output each of us produces for every hour we work. We have increased our annual real income from less than $2,400 per household to more than $4,000. We have cut 18 hours from our average work week. We have reduced industrial accidents, eliminated child labor, and conquered many age-old diseases of mankind.

In the words of Robert E. Wilson, Chairman of the Standard Oil Company, Indiana, "For the first time in the history of mankind we know, in the middle of this century, that we can produce enough to give every man, woman and child what they need in food, clothing and shelter. These are material benefits, to be sure, but in this material base we have the means for building a culture without parallel in history."

All this has been made possible by many factors, ranging from the fortunate protection of two wide oceans to the advantages of having settled a continent rich in coal, iron, oil, and water power. But as technical men, we know that the industrial phenomenon known as mass production—the art of making things, repetitively, in great numbers—was the main factor, the magic key, that made this increase in material blessings possible. And we know further that standards—the engineering tools of industry—are the essential factor that underlies all mass production methods and makes possible our large-scale production, distribution, and consumption.

In less than 40 years, the standardization movement has come of age, and has become not only a powerful economic force, but the dominating characteristic of our national economy. In achieving this status, it has had to meet and overcome four powerful points of opposition that were brought up against the theory and practice of standardization. It may be instructive to us today to look at those four opposing viewpoints, for they still contain dangers against which we must be ever alert.

1. There was once a widespread fear that standardization spelled regimentation, that it meant monotonous, unaesthetic sameness in our living. That belief was born out of complete misunderstanding of the engineering principles of standardization, as well as of their actual effects. It has, I am happy to say, pretty well disappeared from our national thinking. It is now apparent to everyone that life is enriched by standards, rather than deadened. In Herbert Hoover's words, "Standards do not impose uniformity upon the individual, because they make available to him an infinite variety of additions to his living." Yet if we permit ourselves to lapse into thinking that the "American Standard" is the only criterion of good business practice, then we are in danger of regimentation.

2. There was the fear the manufacturer had that he would lose business by making standard parts. He then made non-standard parts on the theory that his customers would have to come back to him for replacements. The excesses of varieties that resulted would have been comic if they had not been so costly. Fortunately, most American industries have left far behind them their old faith in this theory. Where we have a lack of interchangeability today, it is generally (a) because of the difficulties of reaching industry-wide agreement in standardization of component parts, or (b) because of the initial capital expense of replacement. There are still about 500 different types of perforated plates used in the machines that grind hamburgers—500 different ar-

rangements of holes, thickness, beveling of edges, etc.—but I doubt if the manufacturers of those machines are under any illusion today that they are doing anything but raising costs all around by perpetuating this economic absurdity.

3. The third objection the standards movement had to overcome was that held by the government bureaus. For some decades the government held, off and on, and with varying degrees of intensity, that business and industry associations were against the public interest. And, of course, standardization was one of the association activities that was generally condemned. Today, trade associations have become "economically respectable"; they are everywhere recognized as necessary and constructive elements of our economy. And standardization is now recognized as one of the fundamental functions of business management, one of industry's best tools for increasing production and eliminating waste. There is virtually no longer any talk to the effect that industry or national standards are against the public interest. The practical evidence of decades is all to the contrary, and there is certainly better understanding today than ever before—in industry itself, among consumers, and in government—of the economic function and purposes of standards.

4. Finally, there was the fear that adoption of standards might freeze men's ideas and minds, and stifle the development of new methods, new machines, and the use of new materials. As an engineer, I respect this fear and have felt some concern about it. Certainly it is easy to visualize circumstances in which standardization can be carried out too soon. It is easy to conceive of cases in which there can be too much or too inflexible standardization, which could stifle progress and inventiveness. It is easiest of all to imagine a situation in which standards could be promulgated by political whim and changed only by political pressure. Such standardization could be infinitely worse than no standardization at all. Yet the objection here, it should be noted, is not standardization, but rather to the improper use of standardization. The remedy for such conditions is to take care that they are not permitted to happen, by fostering that typical American business attitude: "There must be a better way to do this."

The American Standards Association lays great stress on flexibility in writing, maintaining, and amending American Standards. Every group substantially interested has a right to be represented on the body that develops a standard. There is nothing compulsory about their use; there can be nothing to stop an enterprising maker from departing from the standard to turn out a specialized product.

True national standards developed under such procedures and principles rise above all the objections that have been charged to the standards movement. They are the very opposite of regimentation and monotony. They enlarge markets rather than diminish them. They are truly in the public interest. They cannot become limitations, restrictions, or controls. They are the essence of flexibility.

They fit perfectly the function of standards as described by A. W. Whitney, who spoke of standards as "the liberator that relegates the problems that have already been solved to the field of routine, and leaves the creative faculties free for the problems that are still unsolved."

Standards — A Procurement Tool . . . . . By E. H. Weaver

Manager of Purchases, Union Oil Company of California, Los Angeles

IN 1950, the N.A.P.A. became a member body of ASA and a National Committee on Standards was organized to promote this cause. Much progress has been made in promoting the use of existing standards and creating interest in initiating new standardization projects. The committee is interested in the procedure and policy area of standardization, rather than the actual promulgation of standards.

It is the N.A.P.A.'s desire and purpose to expand the use of standards by purchasing men, both for the savings and conveniences to industry and society in general, and to assist the purchasing executive to make a greater contribution to the progress of his own company.

Standardization is a mutual problem. The engineer has an important part to play in standards which involve his technical training and experience. In many cases where the standards function is in the hands of engineers or a standards committee directed by engineers, the projects suggested by purchasing had rough going. Quite often the result has been of a negative nature. Where this sort of thing happened several times, the purchasing man took the position that life was too short.

On the other hand, the purchasing executive and his staff are constantly aware of the value of savings in the purchasing dollar, and are anxious to do something about it. At the various standardization forums held since the N.A.P.A. committee started promoting standards, we have been greatly encouraged by the interest shown. There are opportunities for the alert purchasing executive and staff to counteract the tendency to design special items when industry standards are available. Occasionally the purchasing men has a battle on his hands in such cases, but when he is able to support his position with good hard economic facts, he can usually make his point.

In my own company, the purchasing department has been effective in this respect through its desire and aggressiveness to do something about standards. Several years ago a question arose because of our repetitive purchases of a specially designed type of underground service station tank. Each purchase of any quantity had to be considered as a special project with the tank manufacturers, resulting in costly storage and funds tied up in such inventory.

Upon inquiry, it was learned that through the years a condition had grown up wherein each of the seven major petroleum marketing companies on the Pacific Coast faced the same problem, i.e., each one of them with their own peculiar designs. The tank manufacturers were not complaining, so long as it meant good business for them. They had no interest in upsetting a good thing. But one of our men did something about it.

He called together the leading petroleum marketing companies and

the leading tank manufacturers, and presented the whole matter to them. After a half dozen meetings and the exchange of engineering data, all parties involved arrived at a common standard. Today these tanks are purchased on an off-the-shelf basis, with considerable saving to both the consumer and the manufacturer.

The use of the standard tank avoids the storage problems and the money tied up in inventory, and the manufacturer is in a position to make up a number of standard type tanks for call by any petroleum marketer. Further savings have been made by the manufacturer by being relieved of the inventory of special size steel sheets formerly carried to meet the different specifications of each oil company. In many cases, the manufacturer could not afford to carry such an inventory and had to either buy out of stock from local steel warehouses or secure long deliveries from the mill. The standard sizes of the tanks agreed upon were based on the size of standard mill rolled sheets, thereby cutting waste to the minimum or eliminating waste altogether. This is an excellent example of where purchasing saw a problem and did something. Credit is also due the manufacturers and users for their willingness to cooperate.

The American Petroleum Institute has done an outstanding job on standardization, and although in most cases the standards have been developed through engineering groups, purchasing has had a very important place in the development of these standards. Another case, for which the Tulsa Association of Purchasing Agents was responsible, is the standardization project of uniform markings for valves and fittings. After being initiated by purchasing agents, the N.A.P.A., ASA, and the Standards Committee of the Valves and Fittings Manufacturers Association joined hands to complete a worth while project. This project emphasized the need of persistent follow-through on a long felt need, ignored as long as possible by certain interests. However, when sufficient people were informed as to the possibilities, all interested groups got together and worked out what proved to be a very constructive standardization program.

Much publicity has been given to the great savings made by major auto manufacturers through standardization in production. Comparatively little notice, however, has been given to their large savings through standardization in the many items purchased for tooling and maintenance and operation. Similar opportunities exist, although perhaps in smaller degree, in many industrial companies. The inquiring mind will search out opportunities for advancement through standardization and endeavor to apply existing standards to company operations.

In our thinking, standardization may be discussed from three different angles:

1. *End product standardization* is very important. We think of it as the product our own company puts on the market. We as buyers are definitely interested in whatever has been accomplished through standardization and occasionally assist in end product standardization, but usually it is the result of sales and research activity for whatever advantage they can gain over competition. Generally speaking, we, as buyers, are more interested in the other fellow's end product, which we purchase.

2. *In-plant standards* refer to those items of equipment, tools, and maintenance and operation supplies used and consumed within our own plants. This is an area where the average purchasing agent will find the greatest opportunities for direct savings.

3. *Industry-wide standardization* hardly requires a detailed discussion here. The greatest over-all advances in standardization have been industry-wide, and I suppose that will continue to be the case.

Do not get the idea that we advocate standards to the exclusion of common sense and economic values. There are pitfalls to be avoided.

The average purchasing agent is a practical individual and will spot uneconomic uses in the promulgation of standards. Standards designed to select a certain manufacturer's equipment to the exclusion of other equipment might eliminate competition and result in higher costs, offsetting the advantages gained through standardization. Then again you may discover cases where it may cost twice as much to standardize as the saving involved.

It is also important to avoid conditions where standards are so slavishly adhered to that progress is stifled. To correct this latter possibility, ASA requires that a standard be reviewed periodically so that new developments are not overlooked.

In summary:

Standards are a vital and effective tool in reducing the cost of procurement.

The purchasing officer can materially benefit himself, his company, industry, and society, through the use of standards.

The purchasing profession is alert as to its responsibilities, and joins hands with the engineering profession in the advancement of standards.

Purchasing—Standards Coordination . . . . . .

By A. J. Beck
Standards Engineer
The Detroit Edison Company

MATERIALS and equipment standardization is an important management tool for effecting savings and other economies. It contributes much to efficient designing, requisitioning, buying, warehousing, application, and record keeping.

Many different departments of a company are concerned with these functions. They must work closely together if standardization is to produce the maximum in savings and other benefits. Normally, the two functions or departments responsible for producing most of the benefits from standardization are Engineering and Purchasing. How well and how frequently they work together are important factors in producing satisfactory results.

At Detroit Edison we have a long history of close coordination and cooperation between Engineering and Purchasing. This is well illustrated in our Standards Committee.

This Standards Committee is headed by our Vice President in charge of Engineering, Operations and Construction. Also on this main committee are our Manager of Engineering, Manager of Purchases, General Storekeeper, and the Editor of our Standards Catalog.

We have 20 subcommittees, four of which are chairmanned by buyers. The other 16 have a buyer to represent and coordinate the procurement interest in standards. All the subcommittees, of course, have representatives from Engineering, Stores, and using departments to similarly coordinate and represent the interests of these departments.

Coordination of the work of the standards subcommittees, and publishing of our Standards Catalog, are assigned to the Purchasing Department. Some of the reasons for this assignment are:

1. Purchasing is the only department having an important interest in all of the items covered by our standards program. These items include stock and non-stock items of materials and equipment for operating, maintenance and construction purposes.

2. Purchasing automatically sees what items are used by the several departments, and the potentialities for simplification.

3. Purchasing has technically trained personnel who are both engineering and commercially minded.

The actual work of standardization, whether carried on by subcommittees, or by less formalized groups in the case of major equipment items, is generally concerned with the following:

a. Determining whether an item is really necessary for company use.

b. Selecting the proper item for each job so as to give the lowest ultimate cost to the company.

c. Establishing approved substitutes for standard items which become unavailable during periods of scarcity.

d. Coordinating our standards with appropriate national, industry, or commercial standards.

e. Eliminating unnecessary types and sizes.

f. Eliminating duplication resulting from several departments using different items for the same purpose.

g. Eliminating obsolete items.

h. Eliminating items made to special design, and replacing them with manufacturers' standards.

i. Investigating substitutes which may make for better construction or lower cost.

j Considering and evaulating new materials.

K. Developing new specifications or revising present ones when necessary to reflect changes in our standards.

Many examples could be cited of the benefits to be achieved by Purchasing participation in the standards program. One such case involves power transformers.

Company A determined that power transformers made in accordance with the manufacturers' standards were quite satisfactory for its requirements. On the other hand, Company B, which operates in the same general area and has similar system problems, had insisted on modifying the manufacturers' standards so as to minimize outage and maintenance problems. These modifications caused extra work on the part of the manufacturer and also tended to extend delivery time. The buyer at Company B determined that the Company was paying a premium of 15% for these special transformers, which actually were doing the same job as those used by its neighbor.

After considerable discussion and consideration of the situation by the Engineering, Purchasing, and using departments, they concluded that the manufacturers' standard power transformer would adequately serve their needs. Since then, by accepting this standard, Company B has been saving 15% on its power transformer purchases.

Close and effective cooperation and coordination between Purchasing and Standards to produce worth while benefits. Such cooperation is essential if our companies are to be successful in America's competitive economy.

The Industry Approach . . . . . By Granville M. Read

Chief Engineer, E. I. du Pont de Nemours & Co., Wilmington

IN the chemical industry, our problems differ from other industries to the extent that materials of construction are subjected to greater chemical and physical changes. They must withstand highly corrosive conditions and wide swings in pressure and temperature fluctuations. These conditions are of great significance in the choice of materials. Long years of experience in this industry have indicated that an economic evaluation should be made prior to choosing materials of construction. Such an evaluation will pay large dividends. Many chemical processes have become dismal economic failures because of careless selection of materials.

Owing to the rapid change of process and products produced, together with the inherent complexities, the chemical industry has been slow in accepting standards. It has moved with caution, even suspicious and doubtful as to the value of standards for its industry.

There are thousands of opportunities to develop standards for the chemical industry. Our company concerns itself with standards for structural, metallurgical, and general utilities, as well as those that apply to the design of process, auxiliaries and field construction, and the maintenance of buildings, equipment, and general service facilities.

It took much persuasion to convince the chemical industry that the standards contemplated did not include or embrace the chemical products *per se*. The formation of a Chemical Industry Correlating Committee in 1950, within the framework of ASA, was the first major step in standards consciousness by the industry.

There are three main areas which should be covered by standards, and which need unification:

1. *Company Standards.* In our company we have used standards, after a fashion, for many years. Perhaps this same condition is true to some extent throughout the chemical industry.

In 1947, the shortage of trained engineers began to pinch. One approach taken to improve this condition was to establish a strong Standards Committee, manned by competent personnel. It is composed of one representative from design, plant engineering, construction, safety, purchasing, and a representative from each industrial department and each auxiliary department. The chairman is from the Engineering Department. The total membership is 21.

This committee sets the policy for the preparation and approval of standards prior to final issuance. The use of our engineering standards is not mandatory. However,

it is the committee's intention that any applicable engineering standards should receive first consideration by interested personnel prior to the adoption of other methods or standards.

We have experienced very little difficulty in getting the interested parties to accept those standards that have been approved by the Standards Committee. Our experience indicates that savings in engineering manpower is equivalent to 7% of our total design force. It has permitted faster drawing schedules, fewer revisions, and substantial reductions in the elapsed time from the conception of a project until it is put into operation.

2. *Industry Standards.* For many years, we in the chemical industry ordered materials and equipment based on our own individual specifications. We required changes from the manufacturers' standard products. We changed the specifications of valves, stainless steel tubing and sheets to our own special analysis. We altered driving mechanisms, agitators, pumps, conveyors, dryers, pressure vessels; changed nozzle locations, perhaps merely by inches, to satisfy an operator. We gave no thought to the extra purchase cost involved in these changes, for every time we deviated from standard we ran up the cost. Still more serious was the delay in equipment deliveries. In many cases it made it impossible to meet the desired schedules. In short, we got what we wanted, but we paid in time and dollars for these indiscretions.

Many engineering organizations lack standards consciousness. If they had this to a greater degree, many unnecessary changes in equipment and design could be eliminated, effecting substantial savings. I do not recommend that we design chemical equipment to specific standards for the sake of using standards, but I do recommend that we use common sense in applying standards to engineering matters.

The fabricator of chemical equipment must be organized to produce on an economical basis, in order to survive and meet keen competition. Naturally, if we deviate from shop practices and standards, he is put to greater expense, which is passed on to the purchaser.

I am sure that if we scan our designs and make our recommendations in the light of good standards and practice, the cost of plant equipment will be materially reduced. Let design engineers and constructors integrate their best practices with those of the fabricators, and the lowest unit cost of equipment should be obtained.

3. *ASA Standards.* The basic function of the Chemical Industry Correlating Committee, in ASA, is to provide a means for the unification of standards and specifications pertaining to materials of construction and equipment used by the industry. Through its efforts, several important improvements have been made, such as the standardization of thin-wall S.S. pipe, valves and fittings. Other items are now under study. As we examine more items in the light of standardization, industry as a whole will benefit.

Undoubtedly the chemical industry will continue to improve the quality of its products, its production techniques and operating conditions, reduce fire and safety hazards. All of these must be considered as things which lead to the higher technical attainments in our industry. By the use of standards in connection with any of these activities, we introduce a tool that can cut cost, and which may have a major bearing on the result of our technical planning or the financial outcome. It is because of this that we should give consideration to the use of standards at an early stage in design and construction. Then follow on through to maintenance and production to make sure that we are not missing a bet.

My company is a strong believer in procurement standards. Why we are is simply this—since inception of our present standards activity in 1947, for every dollar spent for standards, we saved four dollars net. Five years ago, standards were just so many words; today they mean dollars and cents saved through their application to our industry.

The Standardization-Procurement Team . . . . . .

By W. H. Kiler
Standards Engineer
E. I. du Pont de Nemours & Co., Wilmington

INDUSTRY generally recognizes the need for standardization of the various components which enter into the assembly of their products. Such standards are required to permit accurate and speedy assembly, and for the replacement of worn or defective parts. The assembly line methods of production have contributed to the greatness of America.

In the chemical industry, many of our problems are the result of chemical reactions of a highly corrosive nature. Most of them cannot be handled in equipment built with the usual materials of construction. Silver, platinum, titanium, iridium, and tons of the stainless metals are used. Even when built of these special materials, the life of some equipment is a matter of months.

We, in du Pont, face the keenest kind of competition. We compete with from one to fifteen major producers in practically all of the forty product lines that make up most of our business. To sell our product in competition with others, we must obtain maximum life from the equipment. We must build our equipment, the structures which house it, and the auxiliary services to supply them, at the lowest cost. This does not necessarily mean the lowest unit cost for the initial plant investment. The repairs to and maintenance of the plant must be considered. High maintenance costs, or costly replacement or repairs affect our decisions as to how we must construct.

Our Engineering Standards Section does not concern itself with quality or production controls of the finished or end product. These are the responsibility of our manufacturing departments. The Engineering Department must, however, properly design and construct the facility to manufacture the end product, safely and at low cost.

Jointly with the manufacturing departments, our Standards Committee develops the standards used in the design construction, and maintenance of plants. The standards we develop do not always portray the cheapest first cost object or method, from the procurement viewpoint. Frequently they are of the type which cause the buyers to get ulcers. Nevertheless, there must be complete cooperation between the procurement men and the standards men.

From the joint viewpoint, standards are the fundamental approach to a better balance between good



Members of the Purchasing Panel

Seated (l. to r.): A. J. Beck, Standards Engineer, The Detroit Edison Co.; E. S. Page, Spl. Asst. to Executive Vice President, American Machine & Foundry Co.; B. D. Henderson, Gen. Purchasing Agent, Westinghouse Electric Corp.; W. H. Kiler, Standards Engineer, E. I. du Pont de Nemours & Co.

Standing: E. H. Weaver, Manager of Purchases, Union Oil Co., of California, Chairman, N.A.P.A. Committee on Standardization; L. J. Jacobi, Supervising Engineer, Inspection and Standards, The Detroit Edison Co.

practice and economy. They achieve their objective by simplifying the function, quality, or dimensions of an article or piece of equipment. Properly developed, they add immensely to interchangeability, so important in the operation of our plants.

The work of our Standards Section is largely concerned with cutting costs. Savings in dollars are usually considered the ultimate gage of effectiveness. While this is an important contribution, of equal importance is the manpower saved. The saving of time of engineering talent is among the important objectives. Our standards make it possible for a few to do the work of many. This is done by the marshalling of specific design, of facts and figures, in our standards. By so doing, the engineer or designer can make up a specification, or decide upon the design to be used, without having to stop or hunt through many references for the facts essential to the solving of his problem. In the recent construction of a steam power turbo generating station, the saving in engineer and drafting work amounted to $65,000.

An example of the coverage and practical application of our standards is in the construction of a research laboratory building at the new Experimental Station near Wilmington. The number of standards which were used, and the different crafts involved, were:

31 standards for concrete and masonry.

13 standards for structural steel and its erection.

39 standards for general building operations, such as carpentry, millwork, hardware. plastering, etc.

15 standards for heating and ventilation, air conditioning, insulation and refrigeration.

33 standards for plumbing and pipe fitting.

37 standards for electrical power and lighting, communications, and instrumentation.

5 standards for safety and fire protection.

One type of standard we make quite effective deals with what might be described as "industrial groceries". These cover a class of plant commodities such as expendable supplies, tools, spare parts, extra machinery, and the like. All are articles of considerable demand and of everyday use in our manufacturing operations. These we term "Stores Standards". They help greatly in simplifying the procurement, inventory, and disbursement of many stores items. Undesirable or unnecessary items are weeded out. Some stores standards serve mainly to assure uniformity of choice, or to reduce the number of sizes or styles stocked. In most cases, ways are discovered for important cost reductions as well. The Purchasing Department is enabled to obtain additional savings through the application of procurement techniques, quantity purchase, and inter-company distribution.

Where alternate types or makes of the article will meet our requirements, the alternates are noted, and the recommended one is indicated. The standard specifications eliminate the need for writing new specifications for each job undertaken. They supply the construction group or manufacturing division with the necessary data for purchasing, for contracting the work, or for carrying out the work with their own personnel.

Specifications of alternate stainless metals permit the procurement, during the present world situation, of large quantities of stock types of stainless, or a quality adequate for meeting operating requirements. Where severe corrosion conditions exist, special analysis, and subsequent heat treatment, corrosion tests, or fabrication procedures are applied.

Our engineering standards are aimed directly toward the saving of time by having sound basic information and data ready for use. The engineer does not have to stop to investigate, to prepare a design, or write detailed specifications. The buyer does not have to pore through countless catalogs to find the item required. They can both work from tried, proven, up-to-date data and know-how.

The speed and pressure under which we work today require that all of us—the designer, draftsman, construction forces, maintenance crews, and procurement forces—make full use of all their productive time and energy to the best advantage. We believe one of the answers to be in our standards, since they help us to make our plants safe, and to save time and effort, all of which together save dollars.

New casting process is now commercially available

SHELL MOLDING

THE shell molding process is a recenty developed casting method whereby a mixture of sand and thermo-setting resins is baked on a precision pattern to form a permanent, precise, smooth finish mold. These molds are produced in quantity, and can readily be stored for use in casting, as required. They can be stored indefinitely without loss of accuracy. They are destroyed in pouring, as in the case of other precision casting methods.

Basic advantages of the new process include:

Precision. Limits of plus or minus .0025" can be maintained.

Finish. Normal finish is about 125 micro-inches.

Speed. The process is about 4½ times faster than conventional sand mold preparation.

Cost. In some cases, costs have been only half as much as for castings produced by other precision casting methods.

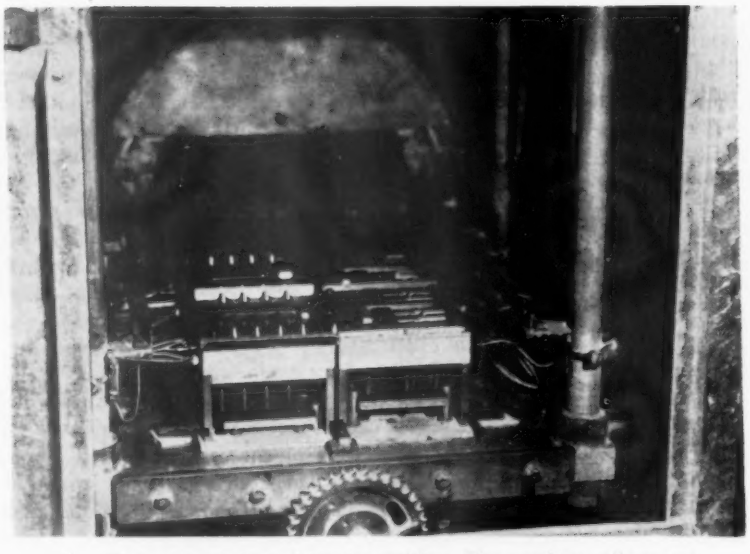
Ease of mold handling into and out of storage. The molds are light, clean, and transportable.

Simplicity of secondary operations. In most cases, shell mold castings can be cleaned up in a simple trimming die.

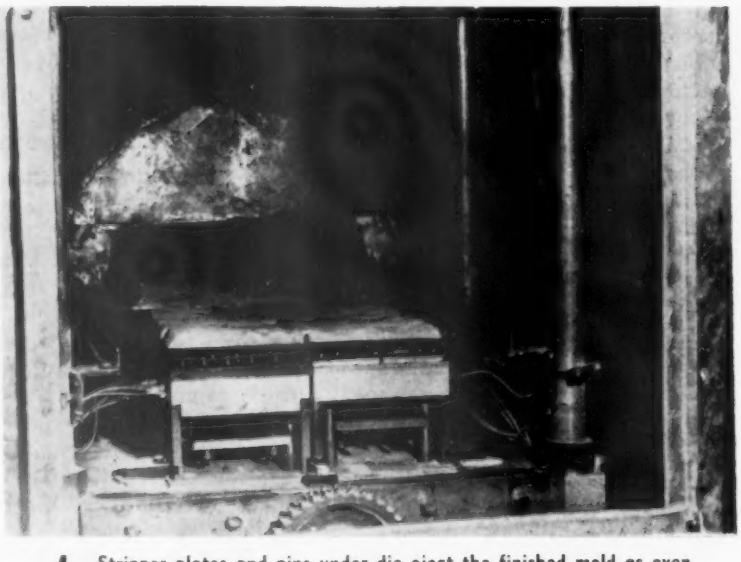
Versatility. Hard-to-cast alloys, such as heat or shock resistant steels or stainless steels, are easily accommodated.

Although a number of concerns have been working on the process for many months, its development and commercial availability have been delayed by a tangled patent situation and the consequent secrecy that has surrounded most of the experimental and developmental work, with a minimum of exchange of technical information that might

Photographs by courtesy of Powdered Metal Products Corporation of America.



1 Dies mounted in position for molding. The machine will accommodate dies up to 12 x 18", produce both halves of mold on a single shot.



4 Stripper plates and pins under die eject the finished mold as oven is withdrawn. All steps of the machine cycle are fully automatic.

otherwise have speeded the process. The veil of secrecy has now been lifted, to the exent that equipment and procedures for shell molding are now being made available to the foundry industry generally. The Powdered Metal Products Corporation of America, Franklin Park, Ill., one of the first fabricators in the country to contract for casting production by the new method, is now offering the equipment developed by Mr. G. L. Bachner on the basis of an initial installation charge plus a per-cycle use-rental fee. Precision metal dies are essential to the process, as opposed to the conventional wooden patterns.

The Bachner machine is a compact and fully automatic unit, designed to perform the complete cycle of operations involved in producing finished shell molds. It will accommodate dies up to 12 x 18″ in size. It occupies a floor area of approximately 12 x 6 ft., and requires no special foundation. Electric power and a compressed air supply are required.

After the dies have been inserted in the machine, the sequence of operations performed is as follows:

1. *Heat die* by means of electric heating elements built into the die shoe.

2. *Deposit* a measured charge of the sand and resin mixture on the heated die from a hopper that is lowered over the die. The shell forms almost immediately.

3. *Cure* the contact surface of the shell by holding the mix in contact with the heated die for a precisely timed interval.

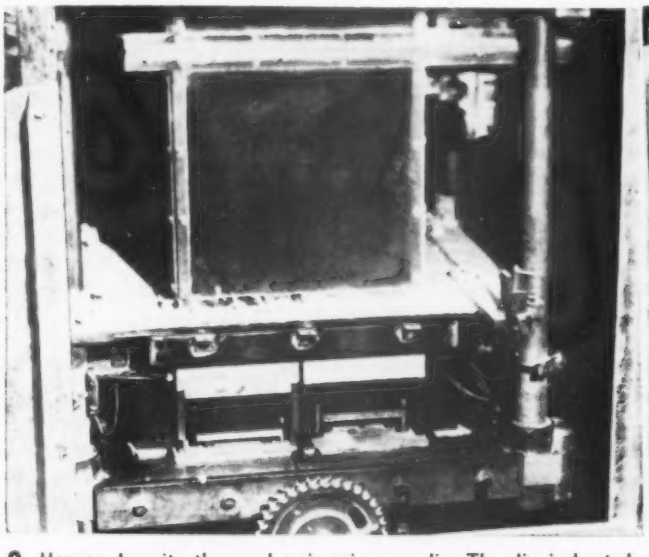
4. *Rollover* to dump excess sand mixture back into the machine hopper.

5. *Oven-cure* the shell to make it permanent, by moving an oven hood into position over the die after the hopper is withdrawn.

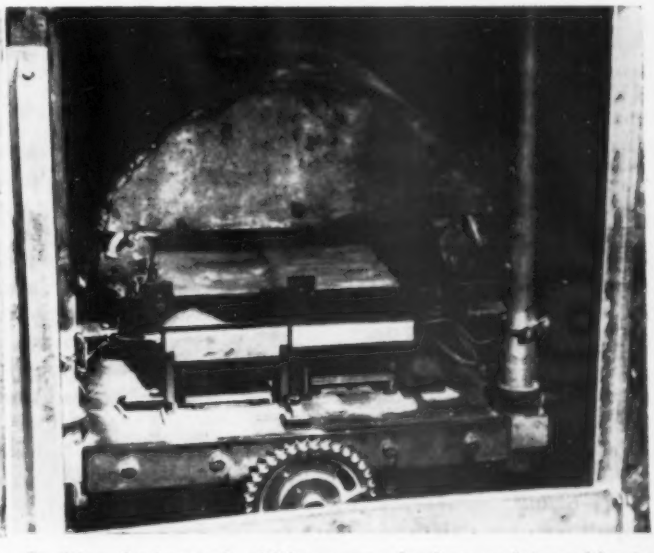
6. *Eject* the completed shell.

All phases of the operation are capable of precise control as to composition, temperature, and timing.

With this equipment, a complete shell molding set-up can be installed in about 150 square feet of floor space, exclusive of shell storage and pouring area. The shell molding operation is completely apart from the pouring operation, which can be separately housed if desired—an advantage in many instances.



2 Hopper deposits the sand-resin mix over die. The die is heated by built-in electrical elements, and shell forms almost immediately.



3 After the hopper is withdrawn, oven hood moves into position to cure shell for a precisely timed interval, producing permanent shell mold.



5 Completed shell mold, as removed from die, is permanent and ready for pouring or storage. Molds are destroyed in the pouring process.



6 Casting from mold is precise to within .0025 and has a finish of approximately 125 micro-inches. One trimming die does the clean-up.

One form to handle repetitive operations

Simplifying Procedure with the TRAVELING REQUISITION

By William T. Ryan, The Travelers Insurance Company, Hartford, Conn.

Report presented at the joint conference of the Association of Insurance Buyers and the Insurance, Banking and General Office Buyers Group of N.A.P.A., Boston, Mass., Sept. 29, 1952

A TRAVELING requisition is in effect an automatic requisition, since it eliminates the necessity of copying the specifications each time a purchase is initiated. Although simple in operation, it is most effective and can be adapted to any type of business.

Since no two concerns operate in exactly the same manner, it seems advisable to start this discussion by explaining briefly just how supplies are handled in our organization.

As in most companies, there is a Supply Department whose principal function it is to receive, store, and disburse supplies and equipment used in the conduct of the business. At regular intervals, all home office department and field offices requisition from the Supply Department the supplies and equipment needed to carry on their work. When an item appears on the requisition which is not stocked in the Supply Department, the requisition is forwarded to the Purchasing Department after all stock items have been furnished.

While it is the practice in the Supply Department to stock all items commonly used throughout the company, no attempt is made to stock supplies peculiar to one department—e.g., duplicating supplies used in the Duplicating Department, medicines and medical equipment used in the Medicine and Hygiene Department, plumbing and heating supplies for the Building Department, etc. As a general rule, these departments maintain their own stock of special items and send their requisitions for such items directly to the Purchasing Department. The greatest number of requisitions received by Purchasing, however, are from the Supply Department for replenishment of stock.

Where so many departments are involved, it is not difficult to understand why requisitions did not always reflect full and complete specifications. This can lead only to confusion and loss of time in the Purchasing Department. When you consider that there are more than 11,000 different items stocked in the various departments, and that the stock is replenished several times a year, you have some idea of the number of requisitions which were prepared and processed.

But the number of requisitions does not really tell the story. It was the detail which had to be shown on each requisition that consumed the time—detail which was necessary to make a proper purchase. Take, for example, the detail required for the purchase of a single item of paper:

> 250,000 sheets—34x44-128M, Sub 16, White, Bond, Vellum Finish, Long Grain; Deliver on skids 34x44, open 34″ side, ream marked, distance between runners minimum 24″, not to exceed 6½″ in height from floor.

This represents only one of over 200 different paper items purchased. The same detailed specifications were required in connection with the 85 different envelopes which we purchase. These are simple examples, but much the same detail was needed for many other items as well. You will recognize the potential hazard involved here—the definite possibility for error in writing out all this detail over and over again, to say nothing of the sheer volume of repetitive clerical work involved.

Traveling Requisition

The idea of adopting a traveling requisition was first considered several years ago and a committee was formed to study its merits. On this committee were representatives of the Purchasing, Methods & Planning, Home Office Administration, Supply, and Printing Departments. The final report of this committee, in December 1949, recommended adoption of the system now in use. Principal advantages of the traveling requisition, as cited in this report, are:

1. A substantial saving in time through the elimination of preparing individual requisitions.
2. A saving in paper and forms, since each traveling requisition card may be used more than 40 times.
3. Elimination of errors in transcription, and errors in ordering, since complete specifications are included on the requisition card.
4. Preparation of purchase orders is facilitated.
5. Requisition file can be used in conjunction with stock control records maintained by some departments.

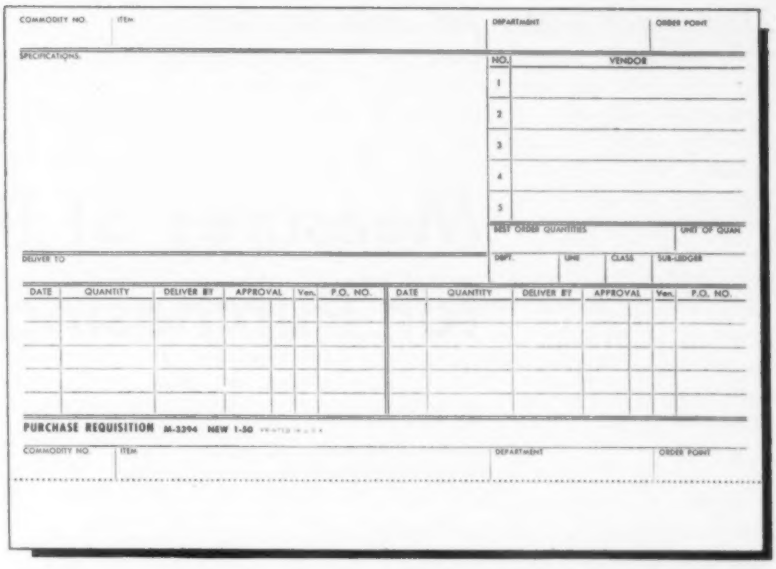
The traveling requisitions are printed on 25% rag ledger card

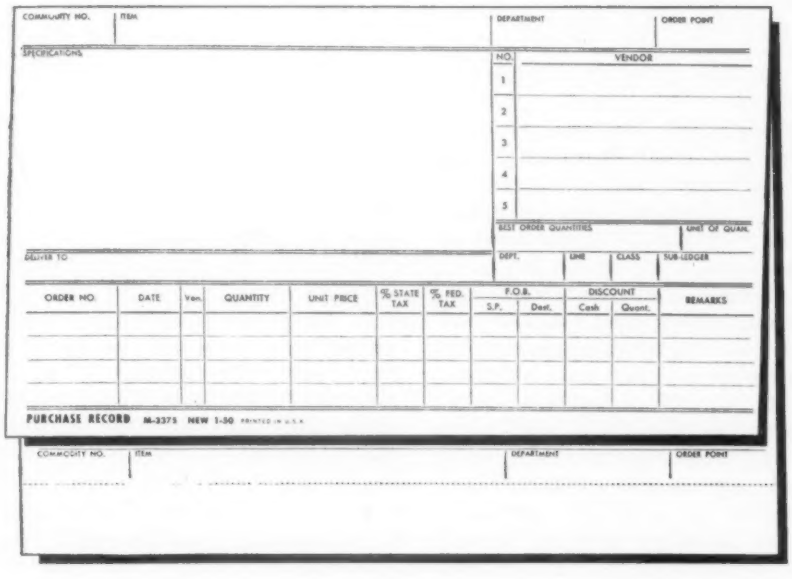
THE TRAVELING REQUISITION

This form is used to initiate all purchases of all items carried in stock—for replenishment of items in the general Supply Department and of items that are peculiar to one department and are stocked in that department. It does not replace the conventional type of requisition used for withdrawing items from stores.

Complete ordering specification is included on the form, but this need not be copied or repeated on each order, thus eliminating repetitive clerical work and the accompanying risk of error in transcription. Each card, including the ruling on reverse side,. serves for 46 requests on the item covered.

As the need arises, date and quantity requested are entered on the card, and it is sent to the Purchasing Department. After the order is placed, usually within 48 hours, the Purchasing Department indicates the purchase order number and the vendor with whom order has been placed, and returns the card to the requisitioning department, where it is then ready to serve again when additional supplies are needed.





THE PURCHASE RECORD

The Purchase Record form is similar in layout to the corresponding requisition form, so that the information in the heading of both cards corresponds exactly, while the columnar ruling in the body of the card varies to suit the special purpose of this form. The two forms are closely tied in together for ease of posting and reference.

The Purchase Record is a folded double card, filed in the Postindex visible book system, with spaces for recording 56 transactions. The original card on each item is prepared by the Supply Department at the time that the corresponding requisition form is prepared. As additional purchase record cards are required, it is the responsibility of the Purchasing Department to prepare them.

When the purchase order is placed, complete details are entered on the Purchase Record, including order number and date, vendor, quantity, unit price, applicable taxes, cash and quantity discounts, delivery terms, and pertinent remarks. From this record, order number and vendor are posted to the requisition, which is then returned for further use.

stock of sufficient strength and durability to withstand considerable handling. The cards are 8 x 5, and are housed in Postindex flat books, accommodating 104 pockets each. In some of the departments with a relatively small list of requirements, such as the Photographic Department, a single book was sufficient. In the Supply and Building Departments, where the list of items was extensive, cabinets accommodating 20 books—2080 items—were provided. The initial outlay for equipment was under $800.

Purchase Record

At the same time, it was recommended that the Purchase Record system be set up in corresponding fashion, to tie in with the traveling requisition procedure. Tests were made with both rotary and vertical files, but the final decision was in favor of the flat book system, using folded cards for greater capacity, with visible index on the lower margin. The entire file, under this arrangement, could be accommodated in three cabinets on a 60″ desk or table. Among the advantages cited for this system and type of equipment were:

1. Full and complete specifications shown on all Purchase Record cards.

2. Easy to use, since posting can be done at the natural level, flat on a desk or at any angle desired by the user.

3. Portability—each unit can be carried around without interference with the balance of the record.

4. Flexibility of arrangement.

5. Ease and economy of expansion—additional books can be purchased individually as needed to increase the scope of the record, at a minimum of investment in new equipment, according to the need, and readily incorporated into the existing record.

Getting Started

One of the difficulties encountered in installing any new record system is the tremendous clerical load entailed in setting it up, along with the ever-present possibility that, in spite of the most careful preplanning, some changes might be found advisable after the system was in operation. We overcame these difficulties as follows:

The new system was initiated first in the Building Department. This department was selected principally because it happened to be located adjacent to the Purchasing Department. It was felt that if any "bugs" developed, they could be more easily remedied if the department was close at hand. Fortunately, the system worked perfectly from the

(*Please turn to page* 336)

How much better job could you do?

Measures of Performance for Purchasing

By R. P. Snow,
Director of Purchasing and Stores
The Cleveland Electric Illuminating Company



Mr. Snow's stimulating paper, presented as an address at the District 6 Purchasing Conference, Cleveland, Ohio, in October, is based in large part on a committee report prepared for the Edison Electric Institute earlier this year and presented to that group in New Orleans in May. For collateral reading, Mr. Snow suggests the articles entitled "Can't Measure Purchasing?", which appeared in the April and May 1951 issues of PURCHASING, and the article "Planning and Control for Profit" by Perrin Stryker, in the April, 1952 issue of FORTUNE.

CONTROLS in the business world are not new; they have been used for many years in almost all phases of business operation. They become increasingly valuable when business starts to decentralize responsibility and authority, as many progressive businesses are now doing. Whenever decision-making is delegated to a lower level of management, some form of control is necessary so that those who have done the delegating may be kept properly informed on conditions and progress.

In one form or another, an account of stewardship must always be rendered. It is the application of measures of performance that makes controls effective.

Increasingly, such measures are being applied in those parts of a company's operations where mathematical yardsticks can be used to advantage. It has proven much more difficult to measure those departments and divisions whose efficiency is dependent on intangible factors, many of which defy yardstick measurement. Purchasing is one of these.

The committee has found no magic by which to arrive at a mathematical formula for measuring purchasing. We did have the benefit of what had been developed in the past. We do know that measures of performance are desirable, that they need to be sought, and that some of them are available.

Approaching the Problem

The purchasing function in a utility or in any other business should be measured in three ways:

1. Against its own past performance of budget estimates.
2. By comparison with other companies in similar fields.
3. Against an ideal standard or norm.

On the first of these, I offer what I hope may be some worthwhile suggestions. The second is much more difficult; I shall make some suggestions where such comparisons may be helpful. The third we shall not discuss. I make only the optimistic prediction that the science of purchasing measurement will some day reach the point where norms may be established as desirable goals which we might strive to attain.

In our committee, we made an attempt to tabulate the principal functions performed in purchasing. We wanted to find out which of these functions were fairly common, and consequently those to which measurement can best be applied. This analysis boiled down to the conclusion that in most companies purchasing is concerned with:

1. Buying materials, equipment, and fuel.
2. Placing contracts for construction and maintenance.
3. Performing expediting functions.
4. Maintaining special contacts with Government control agencies in Washington.
5. Checking and approving invoices.
6. Handling sales of salvage and scrap.

Other important functions performed, but not in the majority of cases, include: traffic, inventory control, standardization, and mechanization.

The functions mentioned do not, of course, include all those performed by purchasing, but they do indicate fairly common areas in which measures of performance may be valuable.

Committee members further reported that, within the above mentioned functions, most of them are keenly aware of the value of competition, good buyer-seller relations, service to other company departments (including the introduction of new ideas and products), and participation in civic and welfare activities.

Facts and Interpretation

Let's look now at measures of performance *within* a company, against its own past records or present budgets and forecasts. There are many ways in which purchasing can make such comparisons: number of requisitions handled or purchase orders issued, value of purchases in total or per order, departmental operating costs, number of invoices cleared, amounts of scrap sold, number and frequency of salesmen's calls, the backlog of work, number of overdue orders in the open file, requisitions held over, departmental overtime as a percentage of total time, manhours per purchase order.

There are various ways in which purchasing output in value may be related to total company income, sales volume, or total investment in plant. The department's operating costs may also be related to those items. Each of us, I am sure, can find many other ways in which to tabulate and measure *some* of the things we are doing.

To be sure, none of these measures is conclusive, but any of them will help to indicate trends if accurately computed and properly interpreted.

It is on this matter of *interpretation* that we all too frequently fall down. A good purchasing executive once told me that he was making practically no written reports to the president of his company, who is his immediate superior. He said that he used to make voluminous reports covering all sorts of purchasing activities, until one day he asked his president if he read them. The answer was "No," and by mutual agreement the reports were stopped.

I think this is an unfortunate condition, both for the purchasing man and the president—particularly because the one key to the situation was lacking. That key is *interpretation*. It is always easier to prepare statistics than to interpret them, but interpretation is the vital part of performance measurement. I am sure that if there had been some boiling down of the essential statistics and a proper interpretation of their meaning, the president would have been decidedly interested and a better understanding of purchasing performance would have resulted.

One of the ways in which interpretation can be used is in charting trend lines which show not just the month-to-month change but, at every monthly interval, the cumulative record of the preceding twelve months. This is a line which can be projected to aid in performance in future planning.

Another example of interpretation could be a chart showing the average value per purchase order issued. An upward trend may reflect only the increasing unit costs of commodities purchased; either upward or downward trends might show the changing level of company activity, particularly in its construction program; but a downtrend might also alert the purchasing executive to the fact that too many small orders are being issued, and that it is high time to explore the possibility of using or extending blanket purchase orders on selected vendors.

Inventory Performance

One of the areas in which specific measures can be applied is evaluation of *inventory performance*. To be sure, the responsibility for inventory does not always rest on the purchasing department, but purchasing always plays a vital role in controlling inventories. Jack Evans, of the Ohio Edison Company, contributed some thoughts on this. He said:

"We have to accept the premise that inventory performance is a result of the control and policy of the Purchasing Department. Certainly the ordering quantity and timing of purchases are prime factors in determining inventory performance.

"From an operating standpoint, inventory is thought of solely in terms of quantity of various items on hand; top management, however, generally thinks of inventory as the dollar value of investment in materials and supplies. Periodically, most of us in purchasing are called upon by top management to justify our investment in materials and supplies. The past ten years reflect a tremendous growth in the quantity of materials stocked. Any historical comparison of inventory investment must recognize the effect of price increases, expansion of production facilities and system growth.

"Inventory turnover is probably one of the most widely used measures of inventory performance. Whatever policy of inventory control we follow, we are striving to improve our rate of turnover. It is up to the individual to establish what his rate of turnover should be, and then measure actual performance against this goal. Comparisons between companies, on rate of stock turnover, are of limited value as a measure of performance because of variations in construction program, production capacity, and areas served.

"Inventory policy with respect to advance coverage or safety stock is another criterion whereby one may evaluate the effectiveness of purchasing performance. Advance coverage may vary with market conditions, delivery, and ability to forecast requirements. To the extent that a company is fortunate enough to have an assured supply of material through distributors and manufacturers' warehouse stocks, the period of advance coverage may be reduced. While advance coverage is essential to smooth operation, it can be carried to the extreme. An economical balance between the carrying costs of forward coverage and inventory protection must be determined.

"Determination of the best quantity to order is still another measure of purchasing performance. Items of relatively small value should be purchased in large quantities, since the costs of processing the order are out of proportion to inventory carrying costs. By determining purchasing costs and inventory carrying costs, we have a basis for determining the best ordering quantity and thereby have a criterion for measuring our purchasing performance.

"Another measure of Purchasing Department effectiveness would be a comparison of the number of times it is called upon to replenish stocks on an emergency basis. When our department is harassed by short

or depleted stock items, we are not in a favorable position to negotiate a purchase; factors of source and price tend to lose their significance. We should scrutinize our rush orders and premium freight shipments to give us an idea of the effectiveness of our inventory control. Routine operations are disrupted by emergency purchases and the efficiency of purchasing operation is impaired."

Case History Method

In spite of all attempts, many accomplishments in purchasing defy curves, trend lines, yardsticks. For many of these, I suggest the possibility of *measurement by example.*

It is a prime function of the purchasing executive to operate efficiently. All such executives feel that they are accomplishing this result in greater or less measure, but they also feel helpless in any attempt to represent their savings in actual dollars. Some of the reasons are obvious. Price savings in buying materials and equipment do not appear on the company's books; they occur ahead of the accounting. Capital equipment and maintenance accounts do not show what might have been much higher costs but for the skillful job done in procurement.

A similar difficulty exists in tryng to evaluate the expediting function. Purchasing's failure to produce materials and equipment in time to meet production requirements or construction schedules can result in very considerable expense to the company. Where this condition occurs, it does cause such expense, and that can usually be pretty well measured. Yet, how can one measure the value of the excellent expediting job which avoids these costly delays and keeps things running?

I suggest for these and other functions where measurement is difficult, the use of measurement by example, a so-called "case method".

Purchasing executives need to be more vocal in calling to the attention of top management a part, at least, of their accomplishments in specific instances. We have done some of it in our company. We have cited cases where the use of *Competition* has saved us as high as $100,000 on a single order. All of you who follow the practice of buying competitively know that savings of this magnitude are not uncommon.

Savings through *standardization* can also be cited by the case method. We have one example where a specification change to industry standards saved us 10% on certain items which we buy repeatedly in considerable volume. Such savings continue every time these items are purchased.

In our company, we feel that purchasing can play a vital part in a company-wide program for *mechanization* of equipment. Indvidual cases resulting from this participation can be cited as measures of performance.

I do not know how you can put tangible value on the results obtained by maintaining *good relations with suppliers*, but I do know that in numerous cases, the salesmen's friends are tipped off to buy ahead of expected price increases. It's your friends who come through with deliveries of those hard-to-get items. And I'd like to throw in here, gratis, the observation that the best way to get a good friend is to be one.

A wide-awake buyer can frequently save money through suggesting *substitute items* instead of those requisitioned. Lower price, higher quality, or quicker delivery may result from such substitution. Why not list some of the specific examples of these savings as typical of purchasing's performance record?

How about the introduction of *new products?* Here purchasing people are on the firing line where knowledge of such products is often first known. The measure of purchasing's performance in sifting the good from the bad, in introducing and securing adoption of products which may increase efficiency of their company's operations, ought to be measurable. Again, it probably calls for reporting individual cases.

Purchasing's *relations with other departments can*, of course, be measured in part by such service and cooperative effort. The opinions of other department and division heads about the cooperative and helpful spirit shown by purchasing people on day-to-day contacts and on special projects, are a distinct measure of performance.

Standards of Comparison

When we move from the area of performance measures within our own companies, where either past records, budgets, or other media may be useful, and enter into the field where attempted comparisons are made with other companies, we

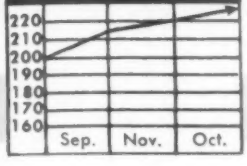
(*Please turn to page 326*)



Trend of Business As Seen In Current News & Statistics

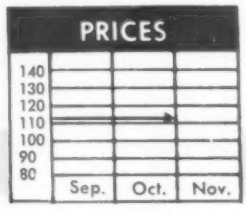
Where We Stand

PRODUCTION



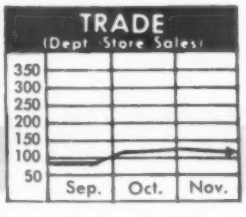
	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Industrial Production Index	1935-1939=100	226	225	218	+ 0.4	+ 3.6
Steel Production (Weekly)	000 net tons	2,203	2,221	2,021	— 0.8	+ 9.0
Electric Power Production (Weekly)	mil KWH	7,807	7,698	7,396	+ 1.4	+ 5.6
Bituminous Coal Production (Weekly)	000 net tons	9,910	8,975	11,524	— 1.0	—14.0
Auto, Truck & Bus Output (Weekly)	units	138,404	130,453	109,697	+ 6.1	+26.2
Petroleum Output **(Daily Average)**	000 bbls.	6,612	6,517	6,204	+ 1.4	+ 6.6

PRICES



	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
All Commodities (BLS)	1947-49=100	111.2	111.7	113.7	— 0.4	— 2.2
Farm Products	1947-49=100	104.9	106.4	111.5	— 1.4	— 5.9
Metals & Metal Products	1947-49=100	124.3	124.5	122.4	— 0.1	+ 1.5
Structural Products	1947-49=100	114.4	113.8	113.6	+ 0.5	+ 0.7
Steel Billets (Fittsburgh)	net ton	$59.00	$59.00	$56.00	0	+ 5.3
Steel Scrap, heavy melting, Pitts.	ton	43.00	43.00	43.00	0	0
Copper, electrolytic	lb.	.24½	.24½	.24½	0	0
Rubber (rib-smoked sheets)	lb.	.29¼	.27	.52	+ 8.3	—43.7
Wheat, No. 2	bu.	2.78	2.68¼	2.87⅜	+ 3.6	— 3.4

TRADE (Dept. Store Sales)



	BASE	LATEST	MONTH AGO	YEAR AGO	% OF CHANGE IN MONTH	% OF CHANGE IN YEAR
Dept. Stores Sales Index (Fed. Res.)	1935-39=100	117	125	127	— 6.4	— 7.8
Commercial Failures (Dun & Bradstreet)	no.	143	147	150	— 2.7	— 4.7
Freight Carloadings	cars	829,198	842,713	791,403	— 1.6	+ 4.7

FINANCE

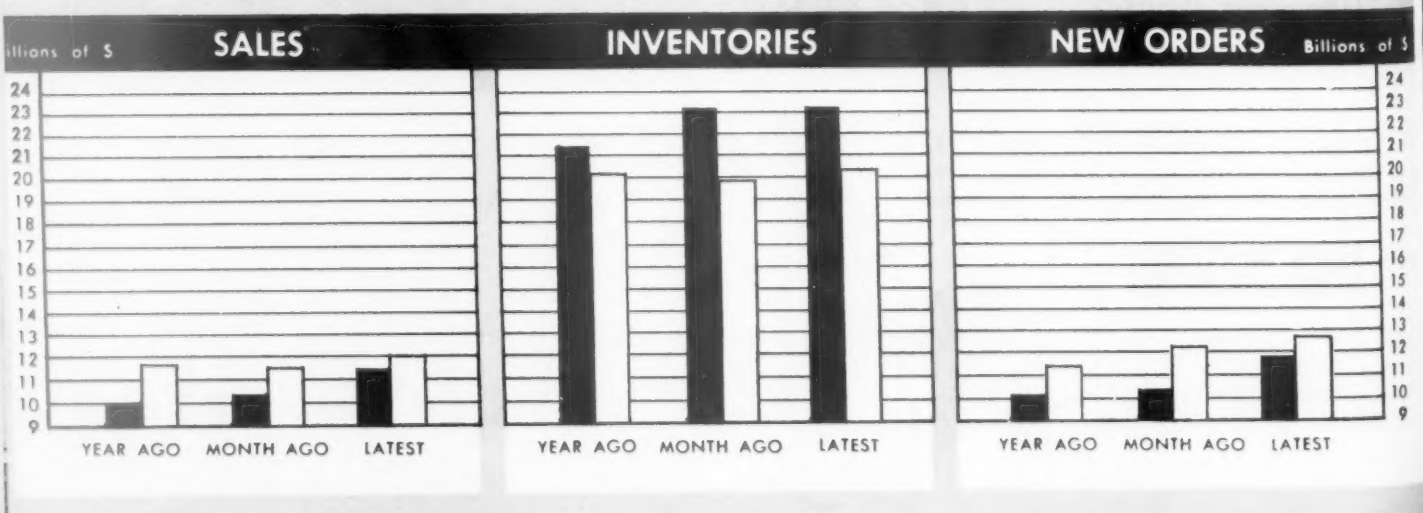
Stock Prices (Standard & Poor's)	1926=100	196.2	189.8	180.9	+ 3.3	+ 8.5
Bank Clearings (New York)	mil $	7,731	8,494	7,147	— 8.9	+ 8.1
Federal Reserve Credit	mil $	25,696	25,325	24,602	+ 1.4	+ 4.4
Currency in Circulation	mil $	29,905	29,617	28,601	+ 0.9	+ 4.5

MANUFACTURERS' SALES, INVENTORIES AND NEW ORDERS

	1951		1952			
	September	Dec.	June	July	August	September
Value of Manufacturers' Sales Seasonally Adjusted (Millions of Dollars)						
All Manufacturing industries	21,800	20,761	21,848	21,249	22,078	23,400
Durable goods industries	10,000	9,786	10,259	9,666	10,622	11,400
Primary metals		1,853	998	1,974	1,959	
Fabricated metals		1,076	1,021	1,026	1,108	
Electrical machinery		1,034	1,186	870	1,179	
Machinery (except electrical)		1,926	2,104	1,708	1,895	
Motor vehicles & equipment		1,357	1,872	1,467	1,314	
Transportation equipment (exc. motor vehicles)		610	682	495	818	
Furniture and fixtures		242	320	244	379	
Lumber products (exc. furniture)		587	764	623	612	
Stone, clay and glass products		418	487	508	522	
Professional, scientific instruments		222	261	232	283	
Other industries, incl. ordnance		462	564	519	551	
Nondurable goods industries	11,700	10,975	11,588	11,583	11,456	12,000
Food and kindred products		2,979	3,085	3,032	2,995	
Beverages		582	732	591	576	
Tobacco products		288	313	278	310	
Textile-mill products		1,110	1,086	1,182	1,065	
Apparel		727	792	940	971	
Leather and products		208	229	298	271	
Paper and allied products		601	605	637	658	
Printing and publishing		782	808	740	667	
Chemicals and allied products		1,408	1,509	1,535	1,497	
Petroleum and coal products		1,927	1,997	1,912	2,039	
Rubber products		363	434	438	408	
Book Value of Manufacturers' Inventories Seasonally Adjusted (Millions of Dollars)						
All Manufacturing industries	41,500	42,014	39,908	42,213	43,146	43,300
Durable goods industries	21,400	22,675	20,304	23,246	23,229	23,200
Primary metals		2,778	2,426	2,879	2,957	
Fabricated metals		2,438	2,133	2,370	2,301	
Electrical Machinery		2,870	2,574	3,013	3,030	
Machinery (exc. electrical)		5,112	4,509	5,250	5,301	
Motor vehicles & equipment		2,700	2,455	2,588	2,630	
Transportation equipment (exc. motor vehicles)		2,176	1,657	2,448	2,315	
Furniture and fixtures		520	588	531	532	
Lumber products (exc. furniture)		1,092	1,017	1,059	1,025	
Stone, clay and glass products		841	837	960	901	
Professional, scientific instruments		718	649	720	778	
Other industries, incl. ordnance.		1,428	1,458	1,430	1,460	
Nondurable goods industries	20,100	19,339	19,605	18,967	19,917	20,000
Food and kindred products		3,386	3,554	3,385	3,463	
Beverages		1,193	1,209	1,230	1,260	
Tobacco products		1,836	1,656	1,782	1,720	
Textile-mill products		2,814	3,222	2,542	2,783	
Apparel		1,446	1,746	1,315	1,795	
Leather and products		567	652	518	557	
Paper and allied products		1,005	917	1,058	968	
Printing and publishing		757	702	717	725	
Chemicals and allied products		3,000	2,850	3,062	3,022	
Petroleum and coal products		2,535	2,481	2,561	2,739	
Rubber products		799	616	795	884	
Manufacturers' New Orders (Unadjusted)						
All Manufacturing industries	21,600	20,344	22,556	24,772	22,500	24,500
Durable goods industries	10,300	9,889	12,235	13,033	10,400	11,900
Nondurable goods industries	11,300	10,455	10,321	11,738	12,100	12,600

p — preliminary n.a. — not available r — revised

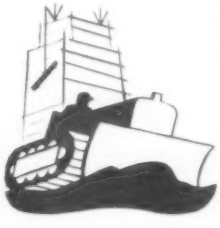
SALES, INVENTORIES AND NEW ORDERS



STRAWS IN THE TRADE WIND

● Latest figures from the Census Board reveal that the population of the U.S. now numbers 157,505,000 — including our GI's overseas. This is an increase of 6,373,000 or 4.2 per cent since the last general census was taken in April, 1950. Compared with 1.4 per cent a year growth from 1940 to 1950, the yearly increase now stands at 1.7 per cent.

● House building for the coming year will keep up with the pace set in 1951 and 1952 of a million-units-a-year according to a forecast by the committee on economic trends and policies of the United States Savings and Loan League. Other predictions emanating from the committee's sixtieth annual convention were, on the whole, optimistic. These included: industrial production will be as high as this year, or perhaps higher; personal incomes will be slightly larger than this year; prices will be stable; total savings will be inadequate to meet investment demands, but the savings volume will be less than in 1952; business investment in plant and equipment will decline from present high levels; and corporate profits will tend to decline.



● The fifty-four day steel strike that ended last July 26 was a prime factor in the country's production figure according to a report by the Department of Commerce. Although the gross national product showed an increase to an annual rate of $343,400,000,000 and set a new record as compared to the previous record high of $342,600,000,000, a better showing would have resulted if the steel strike hadn't dampened sales of hard goods.

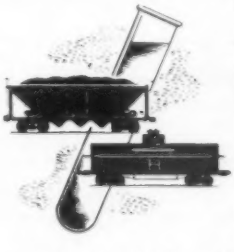
● The moderate-income family's dollar bought a little more in September than it did in the preceding month, according to the National Industrial Conference Board. Lower food prices were "chiefly responsible for the increase in purchasing value — the first such increase in seven months." According to the Board's latest survey of consumers' prices, purchasing value of the dollar rose 0.5% between mid-August and mid-September, reaching a level of 55.0 cents (January, 1939 dollar = 100 cents). The consumers' dollar slipped below the 55 cent mark for the first time in July and despite the recent increase it was still one and a half cents under its year-ago level. Since the outbreak of the Korean conflict (June, 1950), purchasing power of the dollar has fallen 10.9%.

● A big oil search will be on for the next four years along 500 miles of the East African coast by Shell Oil Company. The disclosure was made by Arthur Hope Jones, Kenya's member of commerce and industry. Shell will also decide within the next three months on whether to go ahead with plans for building a large refinery near Mombasa, Kenya.

● The Reconstruction Finance Corporation's newly-developed synthetic "cold" rubber is fast becoming the leader over "hot" rubber, according to Chief Harry A. McDonald. Industry researchers have found that G.R.-S. general purpose synthetic rubber produced at low temperatures has special qualities which give added life to tires. 316,000 tons of G.R.-S. will be sold in the last three months of this year and the first three months of 1953, Mr. McDonald predicted. Of that total, 55 per cent will be "cold" rubber and 45 per cent "hot." Previously the division was equal. Although the R.F.C. owns the nation's synthetic rubber industry, plans are in the works to sell it to private interests.

● Although food bills are high today, figures produced by Austin Igleheart, General Foods president, revealed that in terms of average earnings, 1914 wasn't exactly a bed of roses. As an example, he cited the following National Industrial Conference Board figures on the work hours needed to earn given units of the following commodities: in 1914 it took 1 hour and 26 minutes to earn a loaf of bread against 22 minutes in 1952; in 1952 it took only 22 minutes to earn a dozen eggs against 1 hour and 26 minutes in 1914. George Coppers, president of the National Biscuit Company, also revealed that food consumed 23 per cent of the average income in 1939 against 19 per cent today.

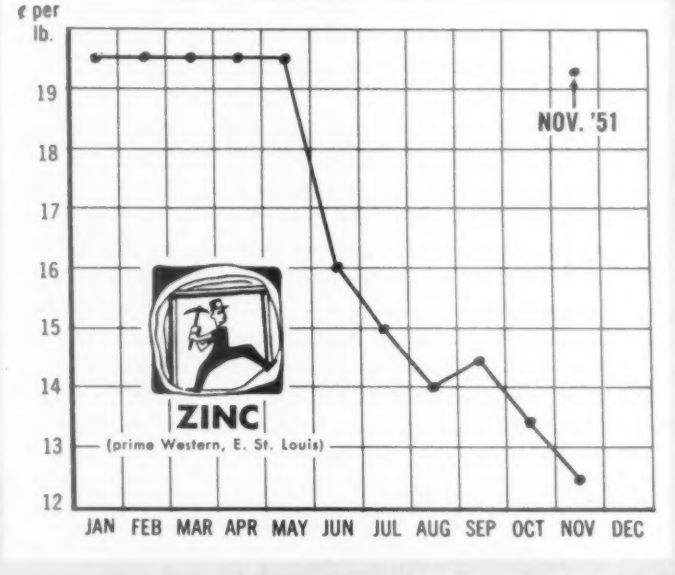
● A prediction that United States demand for petroleum products will increase 46 per cent in the next fifteen years came from the annual meeting of the American Petroleum Institute. The forecast, a result of a study made by the Standard Oil Company of Indiana, broke down the anticipated increase in the following way: gasoline — a 46 per cent climb over 1951, reflecting growing military and civilian needs; kerosene and distillates—44 per cent higher, with strong growth in jet and diesel fuel needs; residual fuel—20 per cent rise; other products (lubricating oil, asphalt, liquefied petroleum gas, etc.)—92 per cent with liquefied gases at 175 per cent.

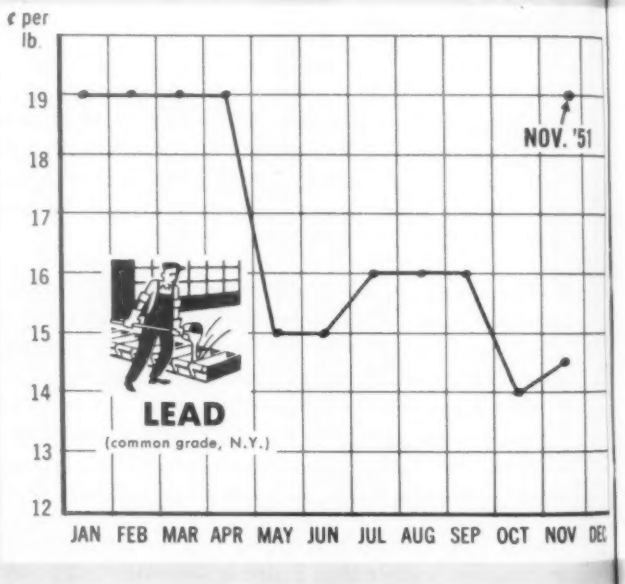


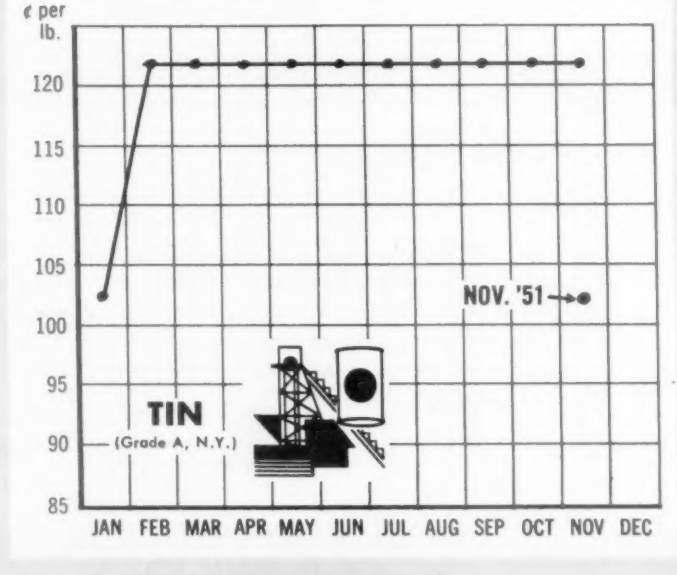
Commodity Price Level Off from 1951; Where Is It Headed Now?

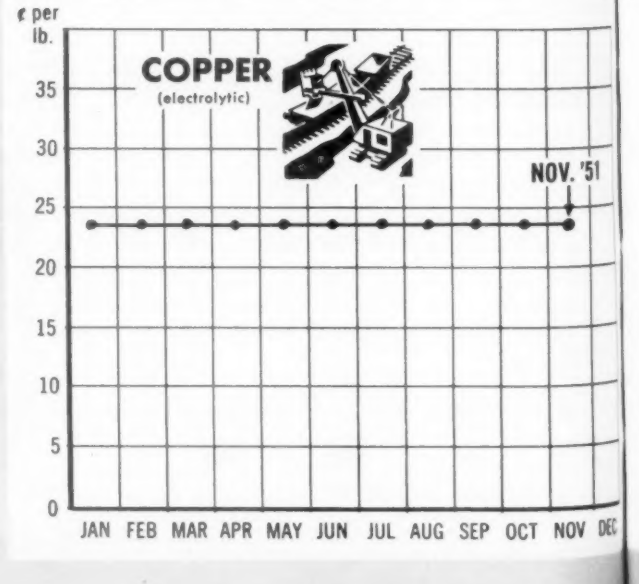
Although the general commodity price level has declined during the past 12 months, there are few expectations that any great slide is imminent. Part of the recent drop is attributed to the traditional uncertainty that prevails during the period just before a national election, and it is believed that the price level will tend upward, at least for a while, now that the political issue is settled.

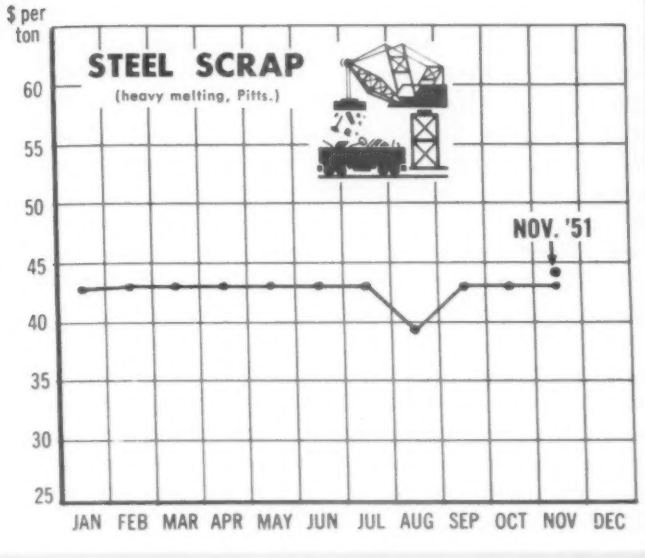
Price movements in a representative group of commodities during 1952 are charted here, with the price a year ago indicated in each case. Figures are based on prices prevailing on or about the fifteenth of each month.

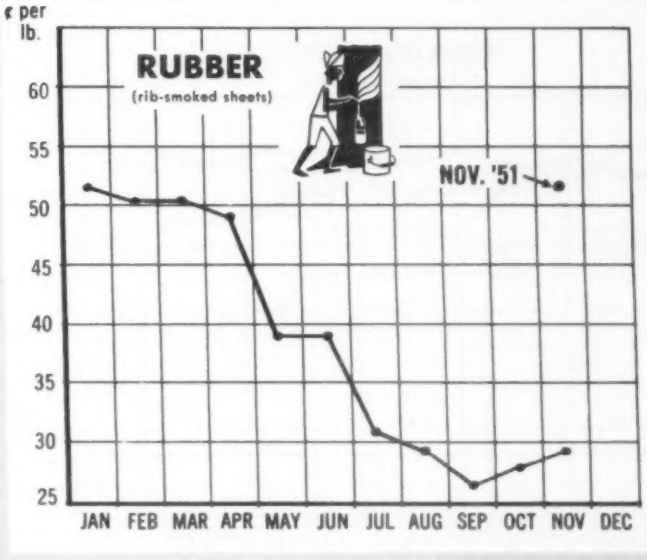


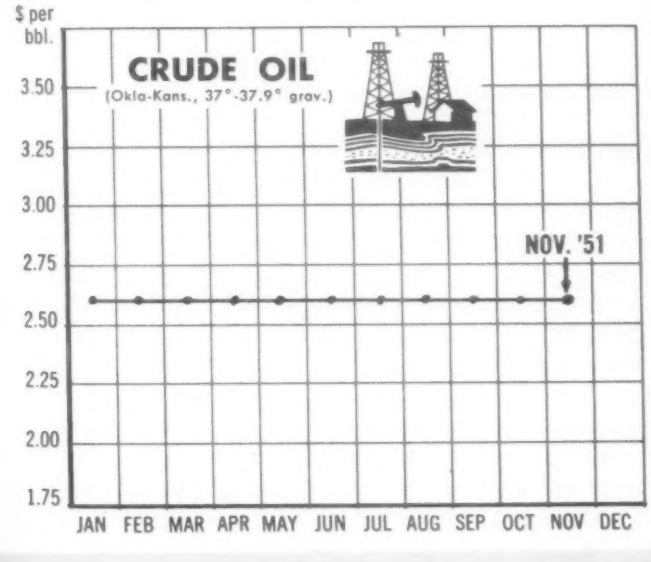


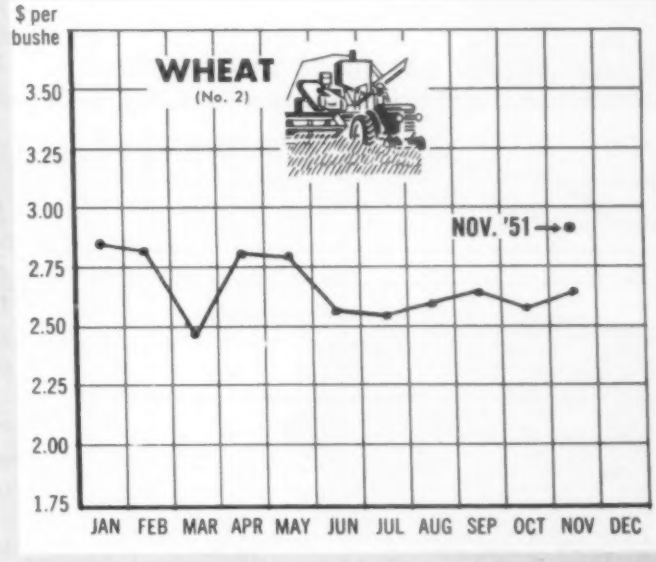


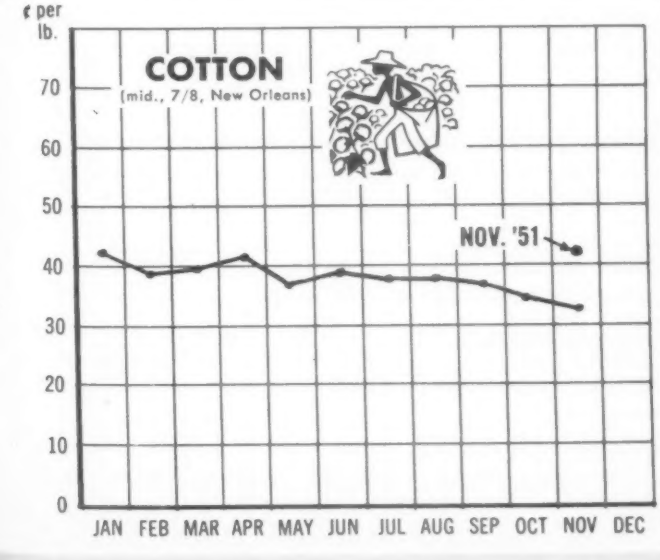


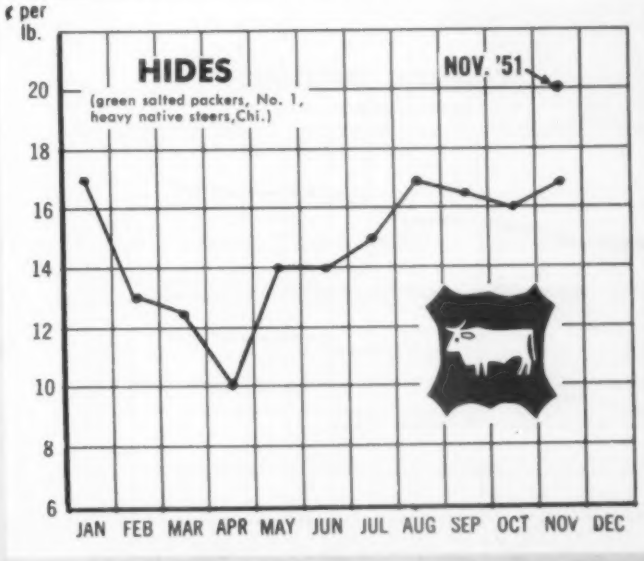

$ per ton
STEEL SCRAP
(heavy melting, Pitts.)
NOV. '51
60
55
50
45
40
35
30
25
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC


¢ per lb.
RUBBER
(rib-smoked sheets)
NOV. '51
60
55
50
45
40
35
30
25
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC


$ per bbl.
CRUDE OIL
(Okla-Kans., 37°-37.9° grav.)
NOV. '51
3.50
3.25
3.00
2.75
2.50
2.25
2.00
1.75
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

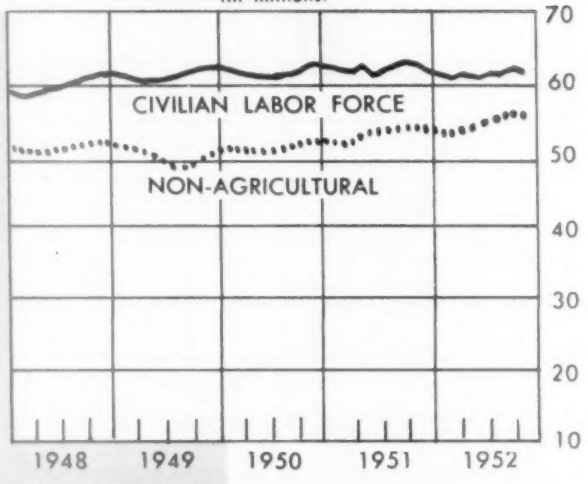

$ per bushe
WHEAT
(No. 2)
NOV. '51
3.50
3.25
3.00
2.75
2.50
2.25
2.00
1.75
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC


¢ per lb.
COTTON
(mid., 7/8, New Orleans)
NOV. '51
70
60
50
40
30
20
10
0
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC


¢ per lb.
HIDES
(green salted packers, No. 1, heavy native steers, Chi.)
NOV. '51
20
18
16
14
12
10
8
6
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC

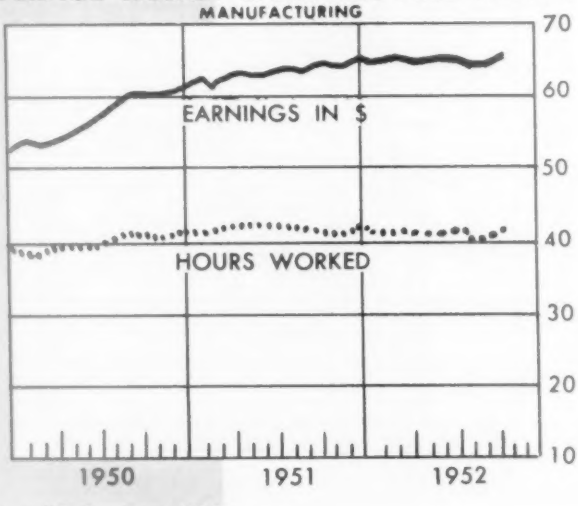
THE PULSE OF BUSINESS

EMPLOYMENT
(in millions)



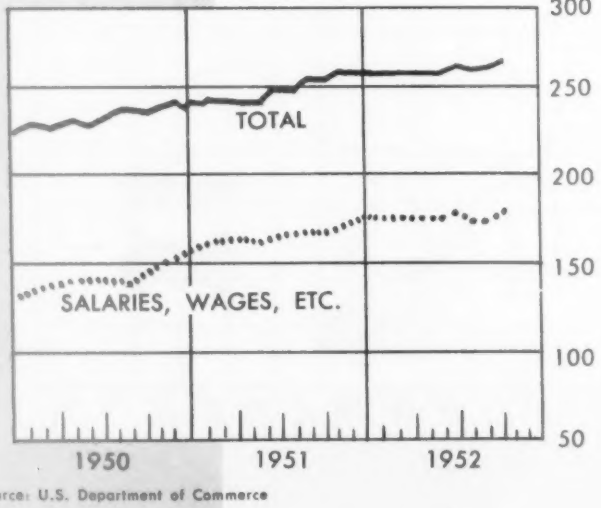
Source: Bureau of the Census

AVERAGE WEEKLY EARNINGS AND HOURS
MANUFACTURING



Source: U.S. Department of Labor

PERSONAL INCOME
(billions of dollars)



Source: U.S. Department of Commerce

Business men are coming in for a double-rich dose of predictions, analyses, forecasts, and fancy crystal-ball gazing. The approach of a new year is the traditional time for such activity, but the arrival of a new national administration at about the same time really fills the forecasters' cup to overflowing. And considering the fact that the party now in power inherits a 20-year reign during which the profoundest kind of economic changes were visited upon the country, the experts can be forgiven their enthusiasm for "pouring it on."

Generally, the opinion is that an immediate reversal of many of the policies carried on by the New and Fair Deals is neither practical or possible. The relationship of business and government is far too complex for simple solutions like that. The principal attitude seems to be that any improvement caused by the election will be, for a while, chiefly psychological, based on long range confidence that the new President and Congress will institute reforms only after they have had sufficient time to work them out intelligently. Businessmen feel that the new administration will take a more temperate approach to the problems of business, and attempt to settle them with less hostility to one side and favoritism to the other.

This type of outlook is summed up in the immediate post-election statement made by P. W. Litchfield, chairman of the board of The Goodyear Tire & Rubber Company. Mr. Litchfield, pointing out that abrupt and sharp change in business activity is not to be expected, said that it seems clear, however, that the people have voted to

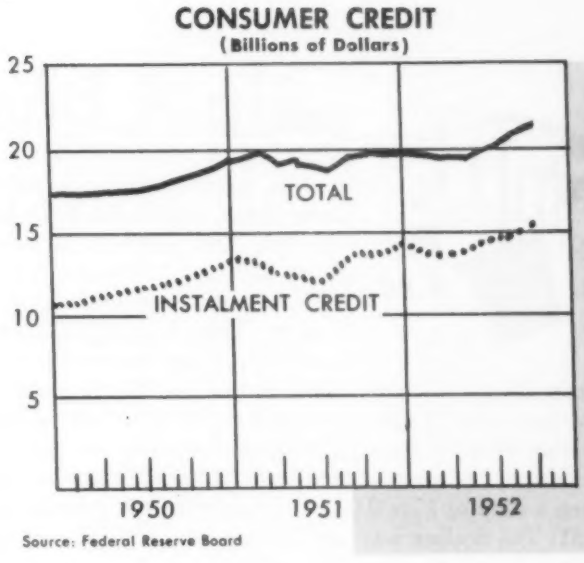
"**Reverse the trend** toward national socialism and dangerous inflation; end the growth of labor monopoly; stop squandering our national and productive resources; restore incentive to the individual citizen and remove the harassing and unfair restraints that have been placed upon private initiative and individual freedom; return to the high moral and spiritual standards upon which our nation was founded; deal realistically with matters of foreign policy."

President-elect Eisenhower's top advisers were also cautious about letting hopes run wild on such important matters as cuts in governmental spending and tax reductions.

Senator Millikin, who is slated to be chairman of the Senate Finance Committee, told newspapermen after his meeting with Mr. Eisenhower that the present planned spending program will govern any moves to lower taxes. Not until Congress gets a good, long look at President Truman's new budget in January will there be any sense in talking seriously about it, he intimated. Joseph M. Dodge, who represents the president-elect in dealings with the Budget Bureau, was equally careful, refusing to speculate on taxes and spending. "A dangerous thing" he called such speculation. During the campaign, Mr. Eisenhower called for a $60,000,000,000 budget — $20,000,000,000 below the

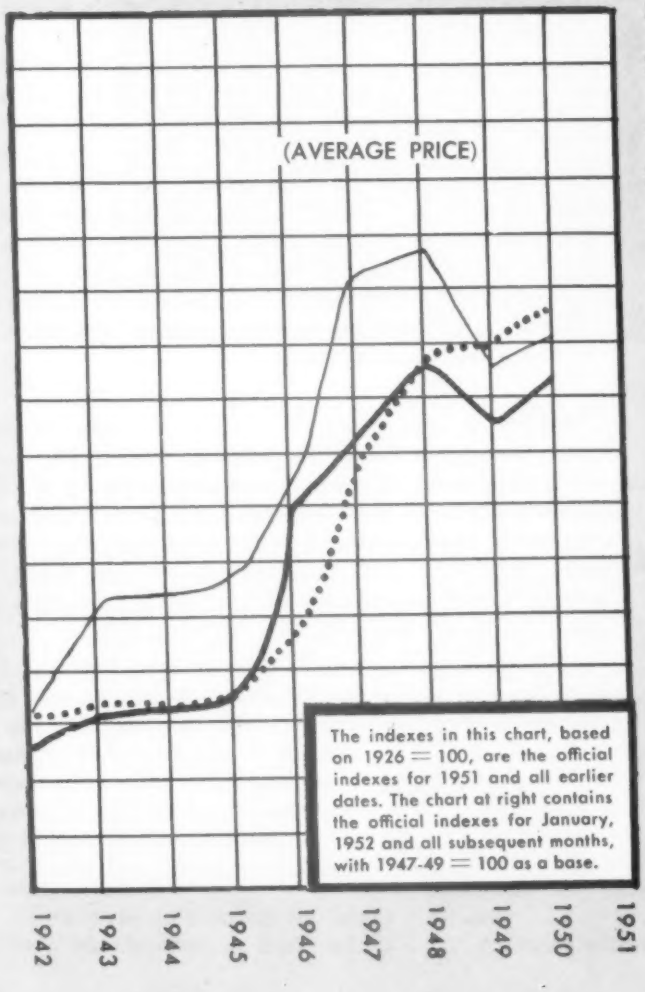
current figure—but he set the time limit for that goal at July 1, 1954.

Meanwhile business activity continued at a good pace during October and the first part of November. The Commerce Department's "Survey of Current Business" reported these factors as indicative of better business: personal income continued to rise; consumer spending was at high levels; unfilled orders went up in September to $75,000,000,000; unemployment during October was at its lowest point since World War II. Assemblies of motor cars and trucks in October were more than 10% above September. Television producers stepped up output during October to reach a volume of close to 200,000 sets in the first week, the largest weekly output since November, 1950. One weak spot noted was the decline in prices of basic raw materials and farm products. The Bureau of Labor Statistics Index of 16 industrial raw materials prices declined 3% from the September average. (Price movements of selected commodities during 1952 are charted elsewhere in this section).

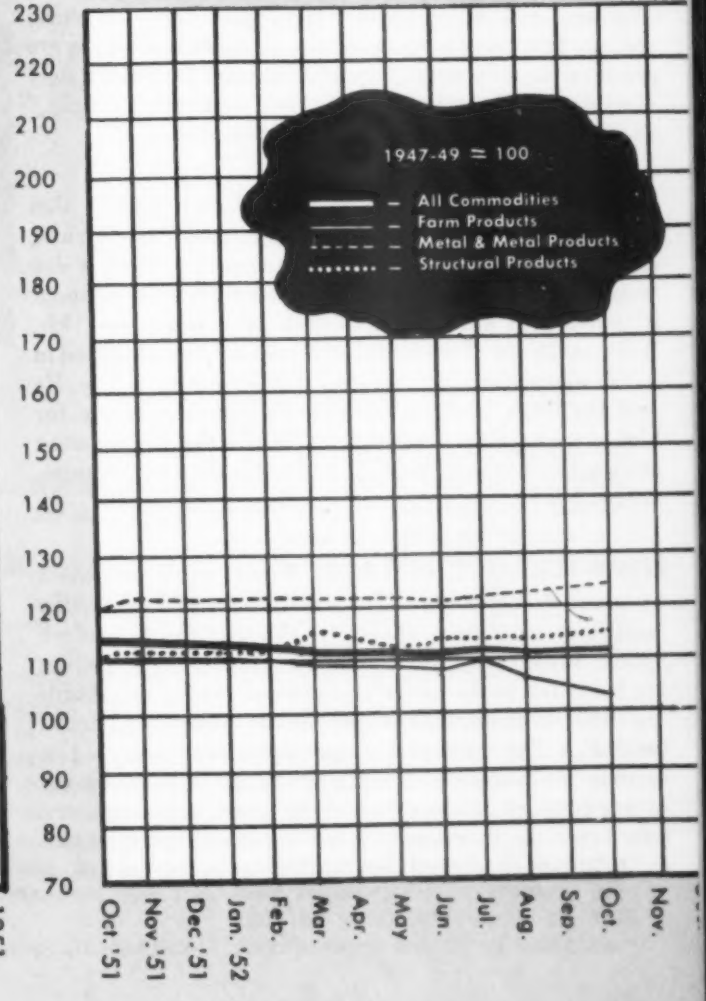


Source: Federal Reserve Board

THE PRICE PICTURE



The indexes in this chart, based on 1926 = 100, are the official indexes for 1951 and all earlier dates. The chart at right contains the official indexes for January, 1952 and all subsequent months, with 1947-49 = 100 as a base.





STEEL: Keeping pace with a steady high demand, steel mills continue to produce record tonnages. Latest figures from the American Iron and Steel Institute show that a new high rate of production — 9,790,000 tons — was established in October. This was 386,000 tons above the previous monthly record, set in March. AISI pointed out that the October rate, if continued for 12 months, would result in an annual production of more than 115,000,000 tons. For the first ten months of the year, output was 74,010,497 tons of raw steel, a drop of 13,500,000 tons below the same period for 1951. The decline was attributed to the heavy losses incurred during the June-July strike.

Although there is talk of greater competition returning to the steel market during 1953 because of the probability of controls being lifted, it is generally agreed that the short-term outlook is for good demand by principal users, with shortages still existing in a number of important products. Hot and cold rolled sheets, alloy steel bars, structural shapes, heavy and medium plates, and seamless tubing are reported as still tight. Sheets, strip and flat rolled steel suitable for tin plate are now in "reasonable supply," according to one large producer's statement.

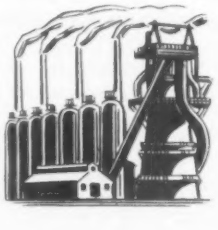
Statements by two leaders in the industry indicate that there may be new moves for price increases. Mr. Fairless, chairman of the board of U.S. Steel, said a $1.90 a day wage increase to coal miners would result in a rise of about $1 per ton in the production cost of finished steel. Mr. Weir, chairman of the board of National Steel, declared in a newspaper interview that steel prices are still too low. He said the latest increase allowed did not compensate for higher wages given steelworkers. He said that depreciation allowances, based on original cost rather than replacement, are too low.

NON-FERROUS METALS: Power shortages caused by severe droughts in the Tennessee Valley and the Pacific Northwest have been adversely affecting the heretofore "good" supply situation in aluminum. Losses in production are being felt in the nation's aluminum foundries, according to the Aluminum Castings Industry Advisory Committee, N.P.A. The growing shortage of primary ingot, used in castings for defense orders, already has forced a shutdown of one foundry, it was reported. Members of the industry have urged the government to use the emergency stockpile to "help tide consumers and fabricators over a period of temporary shortage." Production expansion is expected to provide adequate supplies for all demands by next April, but until then, shortages will occur. Despite the reduction in primary aluminum caused by the power shortages, output in the third quarter exceeded that of the second quarter by 2.2%, the Aluminum Association reports. The increase resulted from new facilities put into operation during the quarter.

The magnesium fabricating industry, backed by an excellent raw material supply situation, will have sufficient capacity to meet all foreseeable military, stockpiling, and civilian requirements upon completion of expansion being carried out without government assistance. This was revealed at a recent meeting of the Magnesium Fabricators Industry Advisory Committee, N.P.A. Committeemen said their capacity to produce is already substantially greater than demand for their products. Speaking at a meeting of the Magnesium Association, a representative of the Dow Chemical Co., a leading producer, said production of the light metal is now more than double actual consumption.

Demand for other leading non-ferrous metals is picking up. Lead buying has been active recently after prices firmed a few weeks ago, and there is some expectation of a rise over the 14 cents a pound (N.Y.) being quoted at this writing . . . Zinc buying has also been stepped up, but industry stocks are at high levels and upward pressure on prices is expected to be slight . . . Demand for copper is still heavy, and there is little expectation of its being decontrolled in the near future. Industry leaders, however, continue to press for higher ceilings. Meanwhile, the National Production Authority reports that scrap shortages are lowering the amount of refined copper available for allocation by 10,000 to 15,000 tons a month.

FUELS: As daily crude oil production topped all previous records for the fourth consecutive week, a warning came that the oil industry may overproduce itself if it is not more "sensitive" to the slackening demand for its products. "Domestic demands recently have not lived up to earlier expectations," Dr. C. C. Brown, director of Esso Standard Oil Co., told the recent convention of the American Petroleum Institute. "Even heating oil" inventories are in "pretty comfortable shape" today, he said. The expected supply pinch in heating oils has not occurred, he declared. Even if the winter is colder than normal, according to Dr. Brown, the industry "should have enough crude and refining transportation capacity to take care of the situation."



Progress and Profit through Standards

By **Roger E. Gay**, President, The Bristol Brass Corporation, President, American Standards Association



Address at the Ninth District Conference, N.A.P.A., Hartford, Conn., October 16, 1952.

PURCHASING agents have long been known for their discrimination when it comes to price and quality. The P. A. fraternity is gaining an even stronger reputation for this exercise of wisdom at present, when we are in a buyers' market and costs are uppermost in the minds of management.

In addition to your exercise of judgment and common sense in purchasing, you have new tools at hand in this year of 1952 to make your job more scientific and rewarding. One of these tools is standardization.

If we were to sum up the areas where standardization has had, is now having, its greatest impact on American industrial life, they would be as follows:

1. Procurement of large quantities of few items, using standard specifications, reduced volume of accounts and records, the elimination of disputes while providing more competition among suppliers.

2. In the field of engineering: greater use of interchangeability, coordination of new designs with existing products, use of modular coordination economies, standardized drawings and drafting room practices, and use of standard specifications.

3. In manufacturing, standardization has resulted in fewer materials and a smaller variety of parts with longer runs and greater continuity of operations. It has made operations more uniform with simpler training required, made inspection easier, improved quality control, brought mechanization to a maximum peak, emphasized the economies of special-purpose machines and provided for quick interchangeability of machine parts in the event of a breakdown.

4. The field of distribution has benefited by a concentration on a reduced variety of products, improvement of the time element of deliveries, simplified training of personnel, better packaging and materials handling, and simplified servicing.

5. In addition, standardization has reduced inventories of materials, parts and end products and has cut the costs of minimum storage and warehousing. It has helped to make the most effective use of every part of the physical plant, simplified office work and provided smoother interdepartmental teamwork.

Government Comes into Line

Whether we like it or not, one of the giants with which every citizen must contend, is the government.

You are all aware of the long-time tendency of government officials to write and use their own specifications instead of using per-

fectly good industry standards. You have all heard of special Federal specifications written for everything from paper clips and yellow pencils to widgets and seven-sided postholes. With a little thought, you could list a dozen ways these "specials" cost us all money and waste time, material and manpower.

In some cases, Federal officials may simply not have known that tested industrial standards have been available for their use. In other cases, Federal officials have looked with distrust on the standards that industry uses in the manufacture of its products. They have felt that these standards have been written solely in the interest of the manufacturer and are opposed to the interest of the public and the government.

Last April, Mr. Willis S. MacLeod, who is director of the Standards Division of the Federal Supply Service, made a speech before the Standards Council of ASA. In that speech he outlined a new Federal policy with respect to industry standards that had been brewing for some time.

In November, 1951, the General Services Administration and the Department of Defense entered into an agreement covering standards, specifications, packaging and inspection. The agreement says: "Nationally recognized industry and technical society standards and specifications shall be used to the maximum extent practicable in the development of Federal and Military specifications and standards. Normally this will be done by adopting by reference or transcription from such industry and technical society standards or portions thereof, and issuing the result as a coordinated or interim Federal or Military specification or standard, without deviation unless the exception can be justified."

For the first time there is official recognition, supported by statute and mandatory directive, that nationally recognized standards and specifications shall be used. Mr. MacLeod calls this new policy the most significant step that has been taken in government standards work in the past 30 years. His Standards Division has already adopted 45 American Standards, mostly in photographic supplies, of which the government is an enormous purchaser. He says it has found 165 more that may be adopted.

I believe that these developments spell considerable permanent progress towards intelligent government-industry cooperation in the area of standards. If this policy is maintained and developed, it will save American industry and the American taxpayer millions of dollars and countless hours of wasted motion.

Examples from Industry

Government, then, is moving ponderously but surely to develop some standardized methods and practices which will eliminate duplication. But we have more dramatic examples in our own backyard, from industry.

Last month in Chicago, at the Third National Standardization Conference, W. H. Kiler, Principal Standards Engineer of the duPont Company, said: "Concerning the money saving aspect, it should be noted that standards have made cost reductions of five million dollars possible for us within a single year (before taxes). While this is an important contribution, of equal importance is the manpower saved."

Standardization made 46,000 man-days of extra manpower available to duPont under this program—the equivalent of adding 185 men to the work force. Standards developed by this concern covered all phases of construction, concrete, steel, carpentry, heating and ventilation, plumbing, electrical power and lighting, communications and instrumentation, safety and fire protection. The company developed 173 standards in addition to existing national standards.

In 1947, duPont started a formal standardization program to meet the shortage of trained engineers. The chief engineer of the company and his associates persuaded the management to put up the money to get started purely on the basis of good faith. When the duPont people told us this story, they pointed out that good faith only lasts one year at duPont and that they had to justify their program in dollars and cents. They are now willing to announce publicly that for every dollar they put into their company standards program, they save the company four dollars net. Now here is a company that has always recognized the value of standards but never did much about making them pay dividends in an organized way.

Everyone thinks of the automotive industry when standards are mentioned because its growth has been bound to the economies of mass production and it is one of the most dramatic manifestations of the American genius for manufacturing. More than ten years ago the President of the International Committee of Scientific Management said: "Figures show that in one year's output of American automobiles, over eight hundred million dollars was saved for the manufacturers, and of course in cost to the public, because of the large number of minor parts that have been standardized."

Additional Benefits

So far, I have been talking about financial savings. We are all very conscious of costs these days. But there are other accomplishments of standardization that I would like to mention.

There is the matter of *quality control*. An electrical manufacturer says that the return to a buyers' market has resulted in the setting of higher standards for product quality. This means that rejections of finished products are more frequent and any improvement in inspection processes, by following the best standard practices, can help to eliminate this waste.

This manufacturer says: "In American industry today, it is estimated that this total cost of rejections amounts to something like three billion dollars annually, which is more than the retail value of all electrical household appliances, including radios and television receivers. This cost of rejections may amount to as much as 3% of total manufacturing costs."

When the costs of rejections do not exceed ½ of 1% of total manufacturing costs, they may be considered normal. Here, then, is a potential saving of 2½% for us to shoot at if rejections are held down by enforcement of better standards of quality control.

The *growth* of a company may even depend on standardization. A large public utility, Tri-state Power, reported that it would be impossible for it to carry out an extensive expansion program if standard design, methods and materials were not used.

Standards influence the *safety* and well-being of employees. An accident prevention association recently told us that much progress has been made in accident prevention as the result of ASA standard guards and personal protective equipment such as goggles, gas masks and protective clothing.

(*Please turn to page* 338)

Basic techniques for making the most of

Interviews with Salesmen

By C. Warner McVicar, Assistant Vice President—Purchasing, Rockwell Manufacturing Co., Pittsburgh, Pa.



Address at the Sixth District Conference, N.A.P.A., Cleveland, Ohio, October 11, 1952.

BUSINESS has given a great deal more attention to selling than to buying. A recent check at a major public library disclosed that they had some 550 books on salesmanship, as contrasted to only 8 books on purchasing—and one of these was published in 1922, 30 years ago, when purchasing science was far from its present stage of development. Most companies train their salesmen carefully in all aspects of selling, one of the most important being the interview with those to whom they wish to sell. But very few companies train their purchasing men in the techniques of interviewing salesmen. It is only within recent years that the importance of the buyer's attitude toward salesmen has been realized.

First Impressions

Let's begin our discussion of the techniques of interviewing salesmen with their arrival at our office. Are we making the right impression on them in our reception room? Are they made to feel that they are welcome visitors? We should provide comfortable chairs, ash trays, and telephones for their use while waiting to see us, and the wait should not be long.

Our N.A.P.A. code includes this statement as one of its policies "To accord a prompt and courteous reception so far as conditions will permit, to all who call on a legitimate business mission." It is a fundamental policy of my company to conserve the salesman's time. By so doing, we also conserve ours. If it is necessary for a salesman to wait for more than ten minutes, the buyer personally advises him of that fact and explains the reason for the delay.

Do not meet the salesman in the reception room and ask him to tell his story where others are present. Most salesmen resent such treatment, and rightly so. Without privacy, you may lose an opportunity to hear about a new product, a price advantage, or a money-saving idea. If you cannot see the salesman at your own desk, it is better to talk with him over the telephone and make a mutually agreeable appointment for a later date.

Guiding the Interview

Generally speaking, the initiative in an interview is with the salesman. He has usually been given complete, intensive training in the manufacture and application of the products he is selling. He has had an opportunity to plan his presentation, but the Purchasing Agent usually has to improvise because he does not know in advance who is calling or the purpose of the call. Also, the buyer has to adjust himself to the discussion of many different subjects with succeeding callers.

Should the buyer permit the salesman to follow his own course with a prepared presentation? Or should the buyer take the initiative, by questioning, to direct the course of the interview more specifically toward his own needs? I prefer to adopt a mental attitude of curiosity, and ask these four familiar questions:

What—new product or development can he offer?

How—does the salesman's product fit our needs?

Who—is the salesman's company?

Where—can my company use his product to advantage?

The interview should answer these questions.

1. *What?* If the product has merit, and is not currently being purchased, we should pass the information along to the man in our company who is the most likely user of that product, or arrange for the salesman to demonstrate to the using department the superiorities of the recommended item.

2. *How?* If the product will fit our current needs, possibly a saving can be made below our present cost, and a savings report made to our management; or other improvements of quality or delivery may be made possible.

3. *Who?* The reputation of the salesman's company should be good in its field.

4. *Where?* This may be answered

TWELVE PRINCIPLES OF EFFECTIVE INTERVIEWING

1. Good first impression; make the salesman welcome.
2. Conserve the salesman's time, and your own.
3. Give the salesman the opportunity to tell his story.
4. Guide the interview to develop information essential to the buyer.
5. Be sure that the salesman understands the buyer's problems and requirements.
6. Be fair, forthright, firm; respect confidential information.
7. Gain and retain the salesman's confidence.
8. Keep reciprocity in its proper perspective.
9. Be a salesman, too.
10. Cultivate legitimate business friendships.
11. Follow through on proposals and promises, after the interview.
12. Take time to evaluate results.

by the salesman. Usually, however, the buyer can answer that question better, on the basis of facts disclosed by the interview, because he must decide whether or not the salesman's product is to be given further consideration.

It has been my experience that the answers to these questions soon indicate whether or not the interview should continue.

How Long?

How much time can we afford to spend on a particular interview? We want to give the salesman an opportunity to present what he has to offer, but only a few minutes may be enough for a "courtesy call" or a proposition that may not be pertinent or timely. Always terminate a fruitless interview quickly and courteously. However, when the salesman has something of possible interest and you need more information than he can furnish at the time, let him know what you want and arrange for him to return with complete details at a later date.

On the other hand, considerable time may be required for a satisfactory interview. We may want an even more extended presentation, perhaps calling in some technical or operating personnel to hear what the salesman has to say. Therefore, the time allowed in an interview is determined by the time required for the buyer to secure the information that he needs in order to do an efficient buying job.

Be progressive and emotionally mature. Learn to keep personal feelings out of business problems. Be alert for new methods and materials that a salesman offers. Use your imagination to detect standard items or substitutes that could replace higher cost materials. Encourage the making of tests or trials on materials that may be of value to your company. Make arrangements with salesmen for you to visit their plants if they are essential sources of supply. Plant visits are important; through them you learn whether or not your vendors have modern, efficient plants, progressive management, stable labor conditions, and the ability to deliver the product on schedule.

In interviews, keep competition open and fair. Make sure that your specifications are clear, and are so written that you can buy from a number of sources. Avoid the use of ambiguous terms or unnecessary conditions. Get better value through standardization.

How much information should we give the salesman? I believe that we should give him as much information as we have available, so that he can be of the greatest help and service to us.

A decision may not be reached in one interview. Decisions should not be rashly made just because the salesman happens to be in our office pressing for an answer. The purpose of initial interviews is to gather information for subsequent analysis and study. Then, after all the factors of good procurement have been considered, the decision as to best source of supply will be inevitable. Then, further interviews for negotiation may be in order.

The Plea for Reciprocity

None of us like to deal with salesmen when their selling argument is based on reciprocity alone. Of course, one of the more favorable ways of insuring satisfactory quality and service may be to purchase from vendors who buy from our company, if we profit by so doing. However, if in the process anything has to be sacrificed in the way of cost, quality, or service, then it is not efficient purchasing.

Our job is to buy from companies from whom we obtain superior products, better service, or a better price. My company handles the reciprocity problem on this basis. Bids are secured, and all the factors which enter into good purchasing are considered. If it is seen that a customer is equal to or better than other sources, it is good judgment to give him the business. Otherwise, we cannot assume the responsibility for making purchases which involve departure from fundamental principles of good buying. In the final analysis, therefore, the award is not made on the basis of reciprocity, but on the basis of its being a good purchase for our company.

On our part, we should similarly avoid using reciprocity as a purchasing factor in dealing with potential vendors. Never should a member of a purchasing department intimate to a salesman that he will not buy from him because the salesman's company does not buy from the buyer's company.

We're Salesmen Too

Interviews are opportunities to create such a favorable impression of our companies and our policies that salesmen will be inclined to put forth serious efforts to serve us and to do business with us. They need to understand our needs in relation to their company's products and facilities. As a result, they should think highly and speak well of us.

We have it in our power to enhance or detract from our company's reputation in our relations with salesmen. It has long been considered a profitable sales policy to develop good will among customers. Good will has come to have real commercial value, and it is recognized as an asset in accounting and in courts of law. Purchasing men are now devoting more attention to the development of similar good will among vendors. Let's think less about the impression that the salesman is making on us for himself and for his company. Let's turn that thinking around and ask, "What reputation and good will are we creating for ourselves and for our companies when we interview salesmen?" We are salesmen, too. But how good are we? Let's conscientiously sell ourselves and our companies to the salesmen who call on us.

When we place an order with one salesman, and can still retain the good will and friendship of his competitors, we have established a reputation for fairness and for doing what we believe to be best for our company. By such an achievement, you will agree that we have come a long way toward our goal of efficient procurement.

We may not have current prospects of buying the products offered by some salesman, but we may need his services at some time in the future. In such cases, we should tell him so in a manner that will win his agreement and retain his interest and good will.

When a salesman gives you literature pertinent to his product and you offer to pass it along to some one else in your company, do so. Ask the salesman for duplicate copies of the literature. Show your sincerity by addressing a reference slip and attaching it, in his presence, for routing to interested personnel. The salesman will return this courtesy on later visits by contacting you instead of trying to bypass the purchasing department.

We must exercise tact when informing salesmen of specific objections to their company's material. The facts should be presented clearly and in detail, but never in a manner to cause irritation or to imply an unwarranted prejudice.

In our negotiations with salesmen, we should be firm, but reasonable, and insist that the salesmen understand our specifications and delivery requirements, to the end that there will be mutual understanding and responsibility.

Decline to take advantage of a salesman's error, just as you would not wish him to take advantage of errors made by your department.

Promote your reputation with salesmen for integrity. Observe strict truthfulness in all transactions. Discourage revision of bids after submission, and insist on getting the salesman's best offer on his first quotation. Respect the confidence of the salesman and his company as to quotations and other confidential information. Keep yourself free from obligations to any vendor.

And, wouldn't it be smart to study the selling policies of your own company? If they are good, make sure that your procurement policies are just as good, or better.

Every member of the purchasing department can help show salesmen that they are product-minded and sincere boosters for the products manufactured by your company. Their influence on your company sales is much greater than you may think.

Business Friendships

Friendship is an important factor in the relationship between buyers and salesmen. On a proper plane, it is to be encouraged, for it can be of great advantage to both parties. When a new item is suddenly needed, the friendly salesman is often the quickest and surest source of information as to the best market and the best price. When it is difficult for a buyer to secure prompt deliveries, a salesman, for the sake of friendship, will often put himself to much inconvenience to supply the item needed.

This sort of friendship can be cultivated—even by the way in which a salesman is told he has lost or can not have an order. Courtesy, square dealing, and straightforwardness beget the kind of friendships that we need. Such behavior is appreciated by salesmen. By contrast, salesmen who receive brusque treatment are not likely to make an extra effort to render special service or to offer new ideas readily. Fair and courteous attention is due to any salesman who thinks he has a product in which we might be interested.

There is nothing questionable or unethical in lunching with a salesman—either to give him a better opportunity to present his case, or for cultivating friendship—provided, of course, that the buyer accepts such attentions as he would from any other friend and keeps himself free of obligations. Among his other wise sayings, Aristotle remarked that man is by nature a social animal; therefore, purchasing men find that it is natural to develop their powers as social beings by developing friendships.

Everything that has been said about interviews applies with equal force when dealing with salesmen by telephone, by letter, or telegram. The attitudes observed and the impressions created by these contacts should reflect the same principles that you express by your attitude and conversation in personal interviews. Remember that the products the salesmen offer to us are the most important products in the world to them.

Evaluating the Interview

What is our evaluation of the salesman, his product, and his company at the conclusion of the interview? If he has made a favorable impression and we can use his product, we want him to continue to call on us. In that case, he has strengthened our position in respect to sources of supply. We have learned something of value that can be applied to our buying program, and the interview has helped us to locate a better product, reduce its cost to us, or make a profitable substitution.

How have we conducted ourselves in the interview? Did we maintain a constructive, positive, aggressive approach? Such an approach will enable us to make the most of the interview—to present our problem, to locate new or better sources, or to improve our present source.

What was the tone of the interview? An important characteristic of a good salesman is his ability to smile. Let's cultivate that habit and create an atmosphere of friendliness in our interviews. Also, give full attention to the points under discussion and keep in mind the salesman's point of view.

Was the interview concluded on a high level of courtesy and confidence? These are the basic requirements for a satisfactory business relationship.

It is time that we appreciated these opportunities and responsibilities that are present in the interviews that are a part of our every-day activity. Our job is a continuing one, and a thrilling job it is. As purchasing men, interviewing efficiently, we can greatly improve our performance and increase our prestige by knowing and using these proven techniques of interviewing salesmen.

What Makes a Price?

By A. L. McMillan

Director of Purchases
City of New York

Address at the annual convention of the National Institute of Governmental Purchasing, Chicago, October 21, 1952.

IT has been said that purchasing consists of buying the right quality in the right quantity at the right price. When this definition is accepted, our next step in the analysis of the purchasing job is to define just what is the right quality, what is the right quantity, and what is the right price.

In governmental buying, these three operations normally are fairly well outlined. A using agency tells us through a requisition what is to be bought, and, by the use of specifications (which the purchasing agent may more or less control) they tell us the quality of the goods to be purchased. That requisition will also tell us how much is to be bought and when it is to be delivered. The purchasing agent may compare these quantities against budget or projected plans, as the case may be, and accept the schedules for action. These two matters of quality and quantity, in governmental buying, are fundamentally responsibilities of the using agency, and are subject to the supervision of the purchasing agent only insofar as he is a staff officer and a representative of authority.

It is a different matter, however, when we come to the subject of the right price—and the selection of the vendor, for there can be no price unless there is a vendor. Price—the right price—is solely the responsibility of the purchasing agent and his buyers.

But, what is the right price? How do you determine what is the fair and reasonable price to pay? Let us give attention to a few of the things that must be considered in analyzing prices, for the purchasing agent must justify prices.



Mr. McMillan works out his economic formula to explain the factors affecting prices.

The commonly accepted policy for prices, of course, is competitive bidding. We establish the specifications of quality and the quantity, and we ask for prices; the low bidder who complies with the proposal receives the order. It is the lowest price, but is it the best price? Could you do better if you sought prices at a different time? Or would a variation in the qualities and quantities, with the using agency concurring, bring you a better price?

What determines the price? We generally say it is the law of supply and demand, but what is that? I recently read the following definition:

"The law of supply and demand says that price represents the point at which the number or volume of willing sellers and the number or volume of willing buyers are in balance."

This definition does the purchasing agent very little good. He is not concerned with the volume of sellers and buyers and whether they are in balance. He wants to know, "What do I have to pay to obtain these goods?" And for justification of that price he wants to know what conditions have entered into the forming of that price.

A better working definition of the law of supply and demand would be to say that "price varies directly with demand and inversely with supply." If demand increases, price will increase; if supply increases, price will decrease; and *vice versa*. Or:

$$\text{Price } \textit{varies as } \frac{\text{Demand}}{\text{Supply}}$$

But we are still not much better off than before unless we define Demand and Supply. You have all probably seen this equation:

Goods × Price = Money

Or, putting it another way:

$$\text{Price} = \frac{\text{Money}}{\text{Goods}}$$

73% VERSUS 50% LIQUID CAUSTIC SODA



THIS UNIT CAN SAVE YOU *MANPOWER* AND *DOLLARS!*

Many volume users of Caustic Soda have realized substantial savings by switching from 50% to 73%.

Actually, the expenditure for making this change is small when compared to the excellent returns.

Take the case of one of Columbia-Southern's customers.

This company invested $3,500 for equipment and its installation to handle 73%. In the first year $35,100 in savings were realized, *a return of 1003% in the first year alone!*

Furthermore, the manhours required to handle the unloading were considerably reduced because fewer cars were needed to supply the same tonnage of Caustic.

The operation used to save both manpower and dollars is the Columbia-Southern patented process that incorporates unloading and diluting in a single operation. The assembled unit (note illustration) is compact and relatively inexpensive.

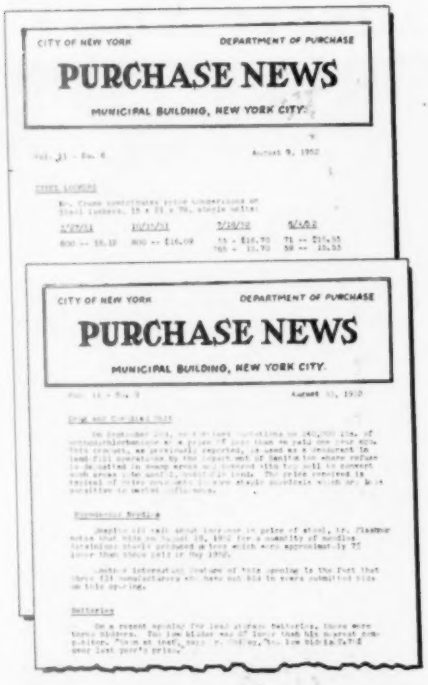
Columbia-Southern's technical service staff will be glad to make recommendations regarding the cost and location of an unloading unit as well as assist with the unloading of the initial shipment.

Shipments of 73% are made in Columbia-Southern's specially designed tank cars that have a patented lining which prevents metallic contamination in transit. Also, these cars have the fusion welded tank, improved insulation, and many other features.

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CITY OF NEW YORK DEPARTMENT OF PURCHASE

PURCHASE NEWS

MUNICIPAL BUILDING, NEW YORK CITY

CITY OF NEW YORK DEPARTMENT OF PURCHASE

PURCHASE NEWS

MUNICIPAL BUILDING, NEW YORK CITY

The typical issue of "Purchase News" consists of 4 to 6 mimeographed pages, with reports and comment on a dozen commodities or transactions.

Now the question is: Is this equation the same as our first statement, only with the "varies as" changed to "equals"? Is Money the same factor as Demand, and Goods the same as Supply? Almost, but not quite.

For the spot transaction, or single purchase, this formula is true of course. When there is a lot of money around, the prices go up; when there isn't, the prices go down; and inversely for goods. But there is another factor that we must consider—two factors: It obviously makes a difference whether buyers are willing to spend their money, and whether sellers are willing to sell at a given price level. We therefore must modify our formula to:

$$\text{Price} = \frac{\text{Money}}{\text{Goods}} \times \frac{\text{Willing Buyer}}{\text{Willing Seller}}$$

This is a fair statement of the law of supply and demand as it applies to short term comparisons of price (day to day and month to month; maybe a year or two). If we compare a long term of years—a decade or more, we must consider some other factors such as population increase, etc.

You will recall a rather startling performance of these factors just two years ago at the start of the Korean fracas. Money and Goods were behaving themselves at the time, but Buyers all over the country suddenly became very willing to buy. That increased the demand. We called it scare buying. Likewise, Sellers were less willing to sell, and Supply decreased. There we had an increase in Demand and a decrease in Supply and prices shot up 16% in the course of seven months on the B.L.S. Wholesale Index. We were alarmed at the increase in price and properly so. But the change in price came from natural reactions and it can happen again. The reverse could also happen.

The factors I have set forth are the things that make prices change. These are the things that the economists and forecasters talk about. Money, goods, willingness to buy, willingness to sell. They may be calling them something else or explaining them in different terms, but they refer to these four factors. As you analyze the forecasts, think of this formula, and the statements of the soothsayers will make more sense—or less sense—to you. You then will be able to measure their meaning.

In the New York City Department of Purchase we have for years followed a practice of analyzing the market conditions. Each buyer is charged with reporting on his major commodity; we have sixteen buyer-specialists.

Business does not run along on a steady round. We have the annual turn of the seasons and their effect on foodstuffs, and fuels, textiles, leather, oils, soaps, etc.—the effect being far more reaching than we realize. The weather itself may cause great changes, as will wars and rumors of wars, strikes and shutdowns, new factories and new processes, broad financial moves of our government, and other factors. Inventories rise and fall and the banks call their loans or look for borrowers. All these things stir the market. Our buyers keep aware of these influences through the daily press, trade magazines, salesmen's gossip, and their own judgment of the market.

Every other month we hold a meeting which we call an Economic Seminar. The buyers are the key performers and each is prepared to present the conditions in his major commodity for price, supply and demand, and to explain his reasons for anticipations. His statements are analyzed and discussed by the other buyers, and by the Commissioner and his staff. Our storekeepers are present, and they often have questions regarding the advisability of purchasing for stores. Other key men and women are present, ask questions and enter into the discussions. The meetings are not open to the public nor even to other city agencies except for some occasional invitation.

The most interesting discussions, of course, are those of the food buyer and the textile and clothing buyer, for they tell us how our own personal food and clothing budgets are working out. But the metals buyer has had some mighty interesting observations during recent months. Last winter he forecast that steel was becoming plentiful, that steel warehouses would be anxious to convert inventory to money. This became surprisingly evident during the steel strike last summer when he was able to buy fabricated steel assemblies of various types at 10% to 20% less price than a year ago. It wasn't an isolated case. A government statistician who visited our offices in August reported that he found the same condition in five or six other large buying offices in New York City. We were never unduly alarmed about the steel supply, serious though the strike was.

As each buyer reports on his commodity, related buyers make note of the effect of the conditions reported, in their own fields. The furniture buyer is interested in the steel supply; so is the automotive buyer, the machinery buyer, and the plumbing buyer. The drug buyer checked and worried about the food buyer's reports on shortage of beef last year, because that meant a shortage of cortisone or glycerine. The chemical buyer noted a shutdown in the textile mills, for that meant an increased available supply of caustic soda, and he insisted and got a lower price on his current purchases.

The fuel buyer didn't believe all the story about fuel oil shortages at the beginning of the Korean incident. He refused to buy fuel oil at $2.92, and we finally persuaded our old contractor to take on a new year at 2.57 per barrel. There were some 700,000 barrels involved —a saving of over $250,000.

In addition to the bimonthly seminars, we issue a small weekly paper (mimeographed) bearing the title "Purchase News," in which the buyers report their current good purchases, and their comments on the market taken from actual bids.

Pertinent court decisions for purchasing men

Legal Questions Answered

By Leo T. Parker

DURING the past few months several purchasing agents have submitted legal questions to the writer, the informative answers to which will interest all readers, and assist them to avoid legal controversies.

For example, recently a reader wrote an interesting letter, as follows: "Can state, county and municipal officials be compelled to purchase accessories, such as tires and tubes, from lowest bidders the same as other materials, merchandise and supplies are purchased? Also, what merchandise need not be purchased from the lowest bidder?"

According to a recent higher court, tires, tubes and automobile accessories are "materials and supplies" and state, county and city purchasing agents must purchase them from the lowest bidders.

For example, in Schwartz & Nagle Tires, Inc. v. Middlesex County, 69 Atl. (2d) 885, a usual state law was litigated which provides that "materials and supplies" must be purchased by municipalities from the lowest bidders.

The testimony showed that the purchasing agent of a county advertised for tires and tubes. The specifications were for "Eight—1100 x 20—12 ply, mud grip tires with tubes to match."

Although a dealer in Fisk tires and tubes was the lowest responsible bidder, the contract was given to the Hardy Tire Supply Company, a dealer in Goodyear tires, whose bid was slightly higher. The Fisk dealer filed suit and asked the court to compel the county's purchasing agent to accept the lowest bid submitted for Fisk tires and tubes.

It is interesting to observe that the higher court held the contract void by which the purchasing agent purchased Goodyear tires and tubes at a price higher than the bid submitted by the Fisk dealer. This court said:



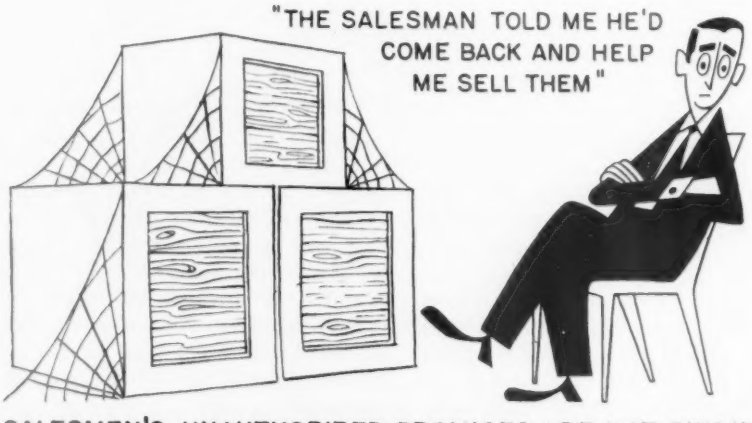
THE P.A. HAD TO BUY TIRES FROM THE LOWEST BIDDER BUT THE APPARATUS DID NOT COME UNDER THIS LAW

"*Prima facie*, automobiles tires and tubes are supplies that must be bought from the lowest responsible bidder. . . . Automobile tires cannot well be called apparatus. The purchasing agent recommended Goodyear tires because he believed those tires are 'generally regarded' as more serviceable than Fisk tires. And we assume for the moment that no specifications can be so drawn as to exclude the less satisfactory brands, unless they are excluded by name; at least such specifications could not be made up by the usual county purchasing office. This seems to present a dilemma. We incline to think that the solution is to specify a particular tire by name and add some such phrase as 'or a tire of equal or better quality'."

For comparison, see Franklin v. Horton, 116 A. 176; 119 A. 29. This higher court held that fire appara-

tus and automobile trucks and chassis, are *not* "materials or supplies" as specified in state laws. Hence trucks and chassis need not be bought from the lowest bidder.

Also, see Town of Hammonton v. Elvins, 127 A. 241. This court explained that where different manufacturers make and sell equipment, merchandise and apparatus *under patents* different from that of other manufacturers, it is impractical for states, counties and municipalities to purchase patented apparatus, devices and equipment from the lowest bidder.



SALESMEN'S UNAUTHORIZED PROMISES ARE NOT BINDING ON SELLER UNLESS BUYER CAN PROVE FRAUD

In other words, this court held that state laws requiring "materials and supplies" to be purchased from lowest bidders do not apply where the nature of the item being purchased is such that competitive bidding is impractical.

Salesman's Guarantee

Another reader wrote, as follows: "If a seller's salesman makes a verbal guarantee, is the salesman's employer liable?"

According to a late higher court decision, if a salesman makes a verbal guarantee of the quality of his product or machine, the seller is liable for damages equal to the financial loss to the purchaser resulting from the breach.

For example, in J. B. Bea Company v. Burris Brothers, 44 So. (2d) 693, the testimony showed facts as follows: A salesman for J. B. Bea Company contacted one Burris, president of the Burris Brothers, with the view of selling the latter a dehydrator. Burris testified that the salesman represented that the machine would produce 600 pounds of dehydrated potatoes per hour, and at that time Burris gave the salesman an order for the purchase of the machine. Subsequently the purchaser refused to pay for the machine, and the J. B. Bea Company, seller, sued to recover the purchase price.

During the trial Burris testified that he relied upon the salesman's representations when he purchased the machine, and that he kept tests and the machine turned out an average of only 451 pounds per hour of dehydrated potatoes for that season, instead of 600 pounds per hour as represented by the salesman, and that at such rate the machine could not be operated at a profit. Other witnesses testified that they were present when the salesman stated to Burris that the machine would produce 600 pounds per hour. Other testimony showed that the machine involved in this suit was one of the first of this type of machine manufactured, and that all machines subsequently manufactured have been producing more than 600 pounds of dehydrated potatoes per hour.

The higher court held that the seller breached its guarantee that the machine would produce 600 pounds of dehydrated potatoes per hour, and that Burris Brothers, the purchaser, was entitled to a reduction of the original $4,500.00 purchase price based on the inability of the machine to produce 600 pounds of dehydrated potatoes per hour. This court said:

"The evidence shows that replacements have been made in the machine from time to time and that eight different representatives of the plaintiff corporation (seller) have attempted to correct its deficiency in production. There is no question in our mind but that Laporte (salesman) made the representation to Burris at the time the order for the machine was placed because the testimony of Burris and Green to that effect has not *been* contradicted."

Must Prove Fraud

It is important to know that the higher courts hold that an employer is *not always* liable for statements made by salesmen. For example, if a salesman promises to return at a later date and assist a purchaser to sell merchandise, this promise is not legal fraud for which the employer is liable *unless* the purchaser proves that he was induced and caused to sign the contract when relying upon the salesman's promises.

For instance, in Stevens v. Chatfield, 18 S. W. (2d) 1006, a purchaser signed a contract which contained a printed notification as follows:

"No verbal or other agreement not appearing herein shall be binding upon the seller."

The salesman verbally stated that he would return and assist the purchaser to sell the goods. He failed to keep his promise and the purchaser refused to pay the account, contending that the sale was induced by fraud and deceit. The seller sued to recover the contract price. Since the purchaser did not prove that *he was induced* by the salesman's statement to buy the goods, the court held the seller entitled to recover the contract price. The court said:

Manufacturer Not Liable

"The purchaser testified to no fraud or deceit practiced on him in order to induce him to sign the contract except that the seller never intended to carry out the alleged verbal portions of the contract to furnish service salesmen to aid and assist in effecting a sale of the purchased goods, but which, under our opinion was *not* the representation of a present fact so as to constitute a misrepresentation on which the defendant (purchaser) could rely and for that reason it was not such fraud as to relieve him from his obligations under the contract".

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On your next tubing job specify O-B No. 16 Line Valves. Or if you are using pipe, ask for O-B No. 15 Line—same valve but with threaded ends.



Another reader asked this question: "Assuming that a retail dealer purchases merchandise from a manufacturer and the retail dealer sells the merchandise to a consumer, who is liable if the goods are defective and damages the consumer?"

According to a late higher court decision, a manufacturer of merchandise is not liable for damage to a consumer unless he specifically guaranteed the merchandise to the consumer. Also. the retail dealer is not always liable. This situation exists when merchandise is purchased by a consumer from a retailer, who had purchased it from the manufacturer, and the retailer himself did not guarantee the merchandise.

For example, in Jordon v. Brouwer, 93 N. E. (2d) 49, the testimony showed facts as follows: One Jordon took his automobile to an automobile dealer to have anti-freeze put into the cooling system. The automobile dealer had purchased from a manufacturer an anti-freeze solution in cans having an express warranty printed on the labels, as follows: "Glycerine Base Anti-Freeze Laboratory Tested and Approved" and "We immersed specimens of copper, iron, steel, rubber from a hose and synthetic rubber, in a solution made by diluting the anti-freeze compound submitted with an equal volume of tap water for ten days at 140 degrees F. No corrosion or other change in condition was visible on any of the specimens at the end of the test."

Within a few days after Jordon had the dealer put the anti-freeze into the cooling system of his car, he noticed the car would not properly run. A mechanic testified that the anti-freeze had taken "something out of the metal and let the water and the anti-freeze solution seep into the pan, diluting the oil." Other testimony was given that the anti-freeze solution ruined the entire cooling system and motor.

Must Use Care

Jordon sued the manufacturer who had sold the solution to the automobile dealer. In holding the manufacturer not liable, the higher court said:

"There is no privity between the plaintiff and the defendant (manufacturer) and such privity is necessary to sustain an action based upon an express warranty. The plaintiff (Jordon) is a subpurchaser through a dealer who purchased from a distributor of the product."

Considerable discussion has arisen from time to time over the legal question: "If a consumer purchases an article from a retail dealer and the consumer is injured when using the article, can the injured customer recover damage from the retail dealer?"

According to a late higher court decision the answer is no, unless the customer proves conclusively that his injuries were caused by defects in the article he purchased.

For example, in 80 Atl. (2d) 629, the testimony showed facts as follows: A retail merchant purchased a carbonating vessel or soda syphon. The merchant testified that upon its receipt he unpacked and examined it, and finding that it appeared to be in "perfect condition", he placed it in a conspicuous position on one of the shelves in his store, where it remained—unused and uninjured—until its sale, with the associated package of carbon dioxide cartridges, to one Levy.

On the same day of its purchase, Levy, upon returning home, first carefully read the instructions and then screwed the top part and the bottom part "together tight". With the syphon resting on the table, he pushed the button to puncture the cartridge, and almost immediately an explosion occurred, and the top part of the syphon struck Levy in the face, inflicting serious injuries.

In subsequent litigation, the higher court refused to award Levy damages for his injuries, saying:

"It must be immediately recognized that it requires more than proof of the mere occurrence of an accident to set the rule in operation. We conclude that the proofs in the present case fail to reveal at least the probability that the particular injurious mishap would not have occurred without the culpable carelessness of the defendant (Levy)."

Of course, if Levy had proved that the device was defective, he could have recovered damages, but he merely proved that the syphon had exploded. Hence, the higher court took the position that Levy's own negligence in operating the syphon caused the explosion.

The court explained that this same rule of law is applicable in all suits by purchasers injured while operating devices and appliances purchased from either a manufacturer, wholesale or retail dealer.

Guaranteed Service

According to a recent higher court decision, if a seller sells an appliance and guarantees to keep it in good condition, he is liable for failure to keep the appliance in safe condition.

For illustration, in Finley v. Tenn, 231 S. W. (2d) 793, the testimony showed facts as follows: A purchaser sued a seller for heavy damages and proved that a gas heater exploded which he had purchased from the seller who installed it. Also, the contract provided that the seller would "keep up" the heater at all times.

The testimony showed that the purchaser had called the seller over



THE BURDEN OF PROOF REGARDING DEFECTIVE EQUIPMENT IS SOMETIMES ON BUYER, SOMETIMES ON SELLER



Sailor Beware! The Old Man of The Sea!

WHO has not read of Sinbad, as told in the Arabian Nights by glamorous Scheherazade?

Shipwrecked on a strange island, the unfortunate sailor came upon a weak old man. Moved by compassion, Sinbad took the feeble fellow on his back, carried him over the brook, gathered fruit and fed him. But when Sinbad asked him to get down, the old man refused, wrapping his legs about his neck, almost strangling him.

The sailor fainted and fell down, yet the old man clung ever closer. He rained blows on Sinbad, driving him about without rest, to pick fruit and do his pleasure. This went on and on, until the desperate sailor made wine from wild grapes to appease his own plight. One day noting Sinbad's pleasure, the old man snatched a gourd of wine and gulped it down. Completely drunk, he loosened his grip and Sinbad threw him off. Saved by a passing ship, his rescuers said, "You are the first ever to escape strangling by the Old Man of the Sea".

Dating back hundreds of years, the Old Man is an allusion familiar to everyone. He is a warning figure today. Our nation, surviving the storms of two world wars, wanders down strange ways. With kindly intent and glorying in its own strength, America is tempted to shoulder the Old World and its age-worn problems. But weak and feeble as the Old World appears to be, let us beware! How easy to assume a burden which would quickly exhaust our strength, strangle us as a nation, and in the end leave the world as weak and exhausted as it was before our foolish undertaking!

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the telephone and reported that the heater needed repairs. However, no one came and the next day the purchaser again reported that the heater would not burn. The seller promised to send an employe to fix the heater but did not do so. The following day the heater exploded and the building burned to the ground.

Purchaser Keeps Name Secret

In holding the seller liable for $19,500 damages, the higher court explained that to avoid liability it was incumbent *on the seller* to prove that the damage was not caused by a defect in the heater.

According to a late higher court decision, if a person or company buys either personal or real property without disclosing the buyer's name, the seller may rescind the contract.

For example, in Ash Grove Company v. White, 238 S. W. (2d) 368, the testimony showed that the Ash Grove Company was desirous of acquiring certain real property. The executive vice president authorized a real estate salesman to buy certain property for $60,000.00, but the vice president's instructions were "not to disclose the identity of the buyer". Later the salesman contacted White, the owner of the property, and told him that an elderly person of means would buy the property as an investment.

Not knowing that the Ash Grove Company was the real buyer, White signed a contract to sell his property for $60,000. When White learned that the Ash Grove Company was the buyer, he filed suit to rescind the contract. The higher court held in favor of White, and said:

"It is a general doctrine that if either party to a transaction conceals some fact which is material, which fact is within his own knowledge, and which it is his duty to disclose, he is guilty of fraud. Miller (salesman) deceived and misled defendant (White). The statements may have been thought by him to be merely clever ways to induce the sale and yet follow the instructions of his principal. But his statements were at least constructively fraudulent."

This court explained further that a seller is not bound to disclose all facts which, if known by the buyer, would prevent or tend to prevent his making the purchase. On the other hand, if the seller not only remains silent but makes any statement which tends to a suppression of the truth, or to a covering up or disguising the truth, or to a distraction of the seller's attention or observation from the real facts, then the concealment becomes fraudulent which entitles the purchaser to rescind the contract.



IF IDENTITY OF BUYER IS CONCEALED OR MISREPRESENTED THE COURTS MAY RULE THE SALE IS INVALID

Not Liquidated Damages

According to a late higher court decision, a buyer who fails to accept and pay for the total amount of merchandise specified in a contract is liable for full damages, although the contract contains a clause which limits the amount of damages collectable from the buyer.

For example, in Kuharske v. Lake County Sales, Inc., 44 So. (2d) 641, a buyer and seller signed a contract for purchase of grapefruit, containing a clause to the effect that should the buyer fail to comply with the terms and conditions of the contract such contract shall thereafter become null and void, and the advances made to the seller by the purchaser shall be retained by the seller as liquidated damages. In other words, the purchaser advanced certain moneys to the seller and the contract specified that, if the purchaser breached the contract, the seller was to keep the advancements as liquidated damages.

The purchaser paid for several thousand boxes of the grapefruit at the contract price. Subsequently the buyer breached the contract to accept and pay for the balance of the grapefruit, worth several thousand dollars.

The seller sued the buyer for the full value of the balance of the undelivered merchandise. In holding in favor of the seller, the higher court said:

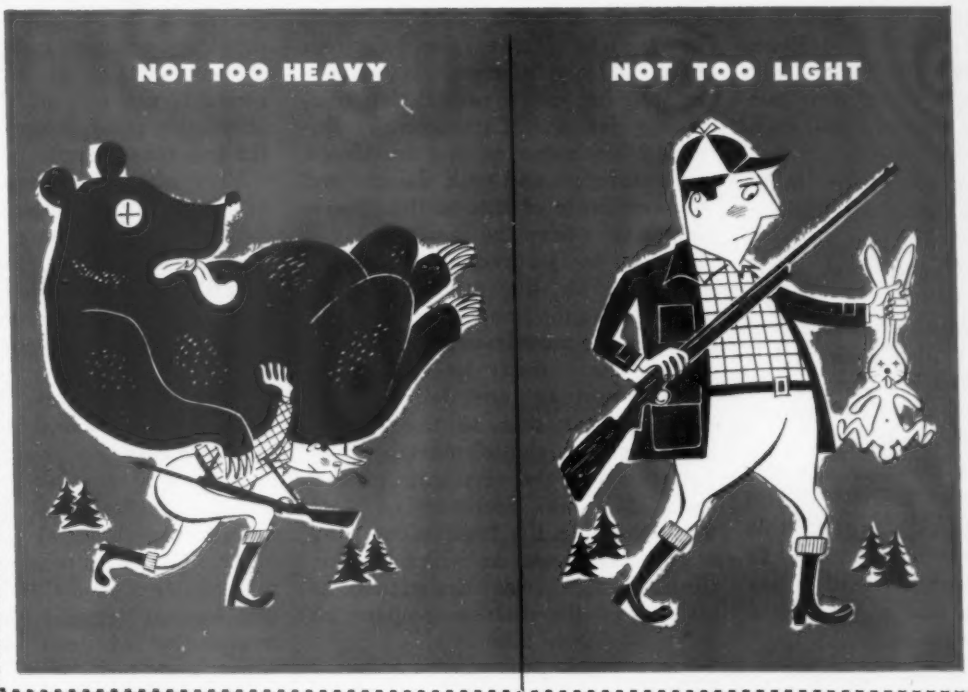
"We are constrained to hold that when the defendant (buyer) failed voluntarily to fulfill his contract and elected to treat the deposit as an advance payment, it will not now be heard to say that the deposit was an agreement for liquidated damages. The judgment should have been in the full amount of actual damages sustained, less the sum of $4,000, which was the amount of the deposit."

Seller Is Loser

A reader asked this legal question: "If we sell a machine and take bank check as payment, and the buyer agrees that no title passes until his bank check is paid, are we protected? If our salesman falsifies a certificate of title or bill of sale and delivers merchandise to our customer, are we liable?"

The answer to the first question is yes, if you do *not* give up possession of *both* the machine and title or bill of sale to the buyer.

For example, in Plummer v. Kingsley, 226 Pac. (2d) 297, it was shown one Davis, the buyer, gave a seller, Plummer, a check. Plummer told Davis that there was no deal until Plummer deposited the check and received full payment in cash. However, Plummer gave Davis a certificate of title without a lien notation thereon and also allowed



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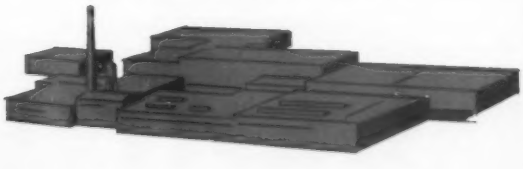
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For 33 Years Manufacturers of Quality Towels, Toilet Tissue and Paper Napkins

Davis to take possession of the machine. Then Davis sold the machine to one King.

In subsequent litigation the higher court held that since the check was not good no title passed to Davis, the buyer, but that Plummer could not recover possession of the machine from King who purchased it from Davis. The court said:

"The buyer acquires no better title to the goods than the seller had, unless the owner of the goods is by his conduct precluded from denying the seller's authority to sell. We think the plaintiff (Plummer) did clothe Davis with such indicia of title as justified reliance by the defendant (King) upon the apparent ownership of Davis."

In other words, although the seller told Davis that there was "no deal" until the check was paid, this conservation was not known to King, who was therefore lead to believe that Davis had a good title because Davis possessed both the machine and title certificate, without any lien notation.



THE CHECK BOUNCED, THE BILL OF SALE WAS INCOMPLETE, YET SELLER LOST TITLE TO THE MERCHANDISE

For answer to second above question see Commercial Finance Corporation v. Burke, 173 Or. 341. In this case a finance company brought suit to foreclose a chattel mortgage on a Chevrolet automobile owned by a dealer in new and used cars. Burke, a salesman for the dealer, had authority to demonstrate cars, take delivery of used cars and receive the certificate of title to the used cars purchased by his employer.

A customer of the salesman's employer purchased a new automobile and turned in her used Chevrolet in part payment. The Chevrolet, together with the certificate of title endorsed in blank were delivered by her to Burke, the salesman. Burke falsely informed his employer that he had a prospective purchaser for the Chevrolet. He inserted his name on the certificate, as transferee, and took the car and the certificate of title to the finance company where he applied for a loan to be secured by a chattel mortgage on the automobile. He exhibited to the finance company the car and the certificate and obtained a loan. As security he executed a chattel mortgage and delivered the certificate of title to the finance company. The chattel mortgage was recorded and the certificate of title was sent to the Secretary of State who issued to the finance company a new certificate in which Burke, the salesman, was designated as owner and the finance company as mortgagee. Some time later, the salesman's employer undertook to sell the Chevrolet car. He was unable to find the certificate of title, and ultimately discovered the facts.

In subsequent litigation, the higher court held that the employer was liable for his salesman's fraud and that the finance company could recover possession of the car. The court said:

"At the time of making the loan to Burke, the plaintiff (finance company) did not know that he was an employe of the defendant (employer). It relied upon his representation that he was the owner of the Chevrolet and upon the fact that he had the car in his possession and with it the certificate of title, on which appeared his signature as purchaser. When one of two innocent persons must suffer because of the acts of a third, he who by his conduct, act or omission has enabled the third person to occasion the loss must sustain it."

Very often two persons innocent of any willful or intentional wrong find themselves in such position, with respect to purchase of merchandise, that one must suffer financial loss. Hence, as above indicated, the higher courts have adopted a rule that where one of two innocent purchasers must suffer a loss by reason of wrongful acts of a third person, the purchaser whose acts made it possible for the third person to bring about the loss must sustain the financial loss. On the other hand, a purchaser who does not acquire a good title to merchandise cannot legally dispose of it, irrespective of *good intentions* of subsequent purchasers.

For example, in Wills v. Shepherd, 231 S. W. (2d) 843, a husband and wife advertised their goods for sale. One White agreed to buy the goods and gave them a check. The husband indorsed the bill of sale on behalf of his wife and himself, but the wife did not acknowledge nor sign the certificate. White, who received the merchandise sold it to a dealer, who in turn sold it to a third person named Shepherd. Later the check given by White to the husband and wife was returned worthless by the bank on which it was drawn. The husband and wife then sued Shepherd to recover possession of the merchandise.

The higher court ordered Shepherd to give up possession of the merchandise to the husband and wife because of the fact that the bill of sale and certificate showed that the wife had interest in the merchandise and that she did not acknowledge nor sign the certificate or bill of sale. The court said:

"The defendant (Shepherd) acquired no title in the absence of acknowledgment of the assignment by plaintiffs (husband and wife)."

An important point of law is that neither a buyer nor a mortgagee of merchandise acquires a better title than possessed by the seller or mortgagor. See Pearl v. Interstate Securities Company, 357 Mo. 160, 206 S. W. (2d) 975, 979.

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Montgomery—Standard Electric

ARIZONA
Bisbee—Copper Electric Co. Inc.
Phoenix—Daley Electric Company

CALIFORNIA
San Diego—Calif. Elec. Works
Los Angeles—Larsen-Hogue Elec. Co.
Oakland—T. L. Rosenberg Co.
San Francisco—Weidenthal-Gostiner

COLORADO
Denver—Baker Electric Company

CONNECTICUT
Hartford—Charles H. Leppert
Waterbury—Elec. Motor Repair Co.

FLORIDA
Jacksonville—Turner Electric Works
Miami—Peninsular Armature Works
Tampa—Tampa Armature Works

GEORGIA
Albany—Georgia Electric Co.
Atlanta—Bearden-Thompson Elec. Co.
Columbus—Smith-Gray Electric Co.

ILLINOIS
Chicago—Chicago Electric Co.
Marion—Giles Armature & Elec. Wks.
Mt. Vernon—Dowzer Electric

INDIANA
Indianapolis—Scherer Electric Co.
Evansville—Evansville Elec. & Mfg. Co.

IOWA
Sioux City—Smith Elec. & Supply Co.

KANSAS
Salina—Cent. Kans. Elec. Mach. Co.
Wichita—Tarrant Electric Mach. Co.

LOUISIANA
New Orleans—Industrial Elec., Inc.
Shreveport—Shreveport Arm. & Elec.

MAINE
Brewer—Stanley J. Leen Co.

MARYLAND
Baltimore—Keystone Electric Co.

MASSACHUSETTS
Lawrence—Roland B. Glines Co.
Roslindale—Ranney Electric Motors
Springfield—Elec. Motor Repair Co.

MICHIGAN
Detroit—Stecker Electric Company
Grand Rapids—Grand Rapids Ind. Elec.
Saginaw—Banning Elect. Prod. Corp.

MINNESOTA
Duluth—Mielke Electric Works
Minneapolis—Parsons Elec. Co.

MISSISSIPPI
Vicksburg—Ludke Electric Co., Inc.

MISSOURI
Kansas City—Boese-Hilburn Elec. Co.
St. Louis—French-Gerleman Elec. Co.
Springfield—Springfield Elec. Serv.

NEBRASKA
Omaha—Omaha Electrical Works

NEW HAMPSHIRE
Concord—A. S. Tracy

NEW JERSEY
Atlantic City—Charles A. Buckley
Paterson—Elec. Service Repair Co.
Trenton—Lockwood Elec. Motor Serv.

NEW MEXICO
Albuquerque—Electric Motor Company
Powell Electric Co.

NEW YORK
Buffalo—Robertson Electric Co.
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Mt. Vernon—H. A. Schreck, Inc.
New York—Consol. Elec. Motor Co.
Rochester—Vanderlinde Elec. Corp.
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Rocky Mount—Hammond Elec. Co.

OHIO
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Akron—A-C Supply Co.
Toledo—Romanoff Elec. Motor Serv.
Youngstown—Winkle Electric Co.

OKLAHOMA
Miami—Miami Armature Works
Oklahoma City—Southwest Elec. Co.
Tulsa—Smith-Milligan Electric Co.

OREGON
Eugene—Kalen Electric & Mach. Co.
Portland—Milwaukee Mach. Co.

PENNSYLVANIA
Johnstown—Universal Elec. Mfg. Co.
Osceola Mills—Mid-State Elec. Eng. Co.
Philadelphia—Elec. App. & Repair Co.
Pittsburgh—Penn. Elec. Coil Corp.
York—Industrial Electric Company

SOUTH CAROLINA
Greenville—Southern Elec. Serv. Co.
Spartanburg—Southern Elec. Serv. Co.

SOUTH DAKOTA
Sioux Falls—Electric Motor Repair

TENNESSEE
Columbia—Middle Tenn. Arm. Wks.
LaFollette—Standard Arm. Works
Memphis—Indus. Elec. & Supply Co.

TEXAS
Amarillo—G. E. Jones Elec. Co.
Beaumont—Elec. Mach. & Repair
Dallas—Industrial Elec. Equipment Co.
El Paso—B & M Machinery Co.
Fort Worth—Central Electric Co.
Houston—Roy A. Berentz Co.
Sweetwater—Sweetwater Electric Co.

UTAH
Salt Lake City—Diamond Electric

VIRGINIA
Richmond—Wingfield & Hundley
Roanoke—Virginia Armature Co.

WASHINGTON
Spokane—Lee F. Austin Company

WEST VIRGINIA
Charleston—Charleston Elec. Supply
Fairmont—Central Elec. Repair Co.

WISCONSIN
Baraboo—Utility Transformer Equip. Co.
Green Bay—Beemster Electric Co.
Milwaukee—Dietz Electric Co.
Wausau—Electric Motor Service
Wisconsin Rapids—Staub's Elec. Wks.

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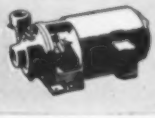
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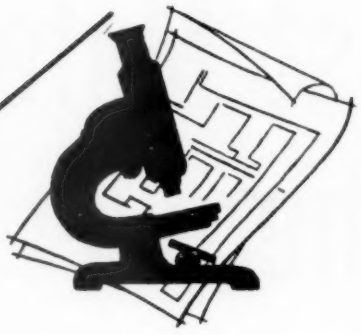
TEXROPE — Belts in all sizes and sections, standard and *Vari-Pitch* sheaves, speed changers.



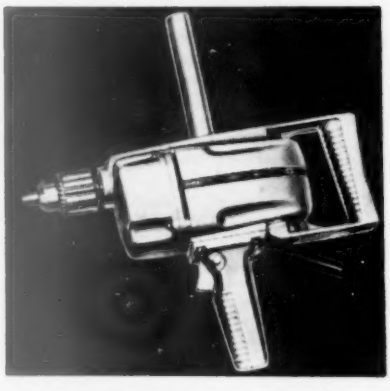


PUMPS — Integral types from ¾ in. to 72 in. discharge and up.

New Products Ideas



New Electric Drills



Industrial drills in ¼", ⅜" and ½" sizes are offered by Portable Electric Tools, Inc., 320 W. 83rd St., Chicago 20, Ill. Typical of the Superduty line is the ½" heavy duty model illustrated. Standard no-load speed is 550 rpm, full load speed 360 rpm. Body and handles are die cast aluminum. Ball bearing armatures are dynamically balanced. Other features include ample size bearings, heat-treated gears in grease-tight housing, lock-type trigger switch with instant release. Reserve power permits continuous drilling in production work. PET makes the entire drill, including motors and housing; says this permits production economies and close control of quality.

New Plastic Pipe Has Many Advantages

A new plastic pipe made by Reflin Co., Gardena, Calif., is said to offer marked advances over plastic pipe now being used in corrosion service pressure transmission piping. Allowable pressures are higher, resistance to heat and impact loads is greater, physical properties at extreme temperatures are improved, and much larger sizes are available. Made of glass fibre-reinforced thermosetting plastic, the pipe is resistant to most salts, acids, hydrocarbons, and natural corrosive elements commonly found in pipeline applications. The pipe is light in weight and easily coupled, reducing installation costs. Standard sizes are 4", 6", 8" and 10" O.D., in 20' lengths.

Low Lift Truck Carries 4000 lbs. & Operator



The new Spacemaster Model "M" low lift truck will raise a 4000 lb. load from the floor and carry it and the operator at greater speeds than are possible with walking types, says Lewis-Shepard Products, Inc., Watertown, Mass. The truck, which is available in either platform or pallet type, features ability to work in minimum aisle space and cramped areas. For example: the platform type with a 48" load operates in 6' aisles; the pallet type with similar load length in 7' aisles. The company says articulated linkage provides stability, ease of steering, uniform weight distribution.

All-Purpose Foam For Alcohol, Oil Hazards



Alcohol and other water soluble solvents are being used more and more by industry—but that means more danger, too. Pyrene Manufacturing Co., 560 Belmont Ave., Newark 8, N. J., has brought out an all-purpose air foam that chokes out all flammable liquid fires—in gasoline and benzine as well as in water soluble solvents. It is expected to have wide application where there are mixed oil and alcohol hazards—such as in oil refineries. Pyrene says its effective life is almost 50 times greater than that of other foams regarded as stable. The foam, which has Underwriters Laboratories approval, covers an extinguished flame for hours afterward with a protective blanket, and prevents re-igniting.

Simple, Efficient Roof Ventilator

Plants bothered with fumes and heat from furnaces, foundry pouring floors, vats and other industrial equipment will find good use for a

(*Please turn to page* 130)

The Greatest Advancement in D.C. Welding!

THE NEW A.O.Smith RECTIFIER



Available in 200-, 300- and 400-Amp. production welding models, N. E. M. A. rated.

OUTPERFORMS ANY MOTOR GENERATOR SET MADE!

No moving parts to wear out. No brushes and bearings to replace. No commutator to corrode or turn down . . . maintenance expense practically eliminated.

Instant striking and smoother arc! There's no inductive time lag usually found in motor generator sets.

OUTPERFORMS ANY OTHER RECTIFIER MADE!

Eliminates stack failure. High-velocity, down-draft ventilation provides plenty of cooling air within the machine. There's no need for thermostatic protection, no interruptions because of current cut out! Even when short circuited while set at rated output, rectifier-stack temperature rise is held below critical levels!

Eliminates machine noise and current creep. No large magnetic forces develop to cause vibration or tear the machine apart, thanks to its moving-coil design. And positive air separation between primary and secondary coils guards against insulation failure which otherwise might put line voltage on welding leads.

If your jobs call for DC welding . . . you'll weld faster, better, at *less* cost with this new A. O. Smith D. C. rectifier welder—an entirely new concept in D. C. production welding!

For complete information and name of nearest distributor or A. O. Smith representative, write:

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For the address of the Pittsburgh supplier nearest you, write: PITTSBURGH PLATE GLASS COMPANY, *Brush Division,* Dept. M-12, 3221 Frederick Ave., Baltimore 29, Maryland.

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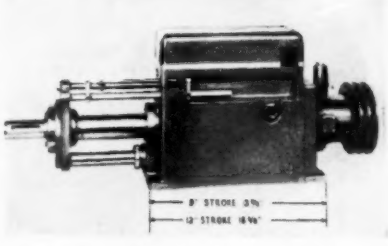
BRUSHES • PAINTS • GLASS • CHEMICALS • PLASTICS

PITTSBURGH PLATE GLASS COMPANY

(*Continued from page* 128)

new automatic fan-powered roof ventilator called the Airjet. Construction of the unit is unusually simple. Outwardly, it appears to be a box, built of galvanized copper-bearing steel. All complicated and costly mechanisms of earlier designs have been eliminated. There are no counterweights or other obstructions to hinder the free flow of air. Two hinged aluminum panels (actually louvers) form a weather-tight peak roof. They open automatically when the fan is started, close when it stops. When they are open, the air-stream effectively prevents entry of rain or snow. Made by Hartzell Propeller Fan Company, Piqua, O.

Self-Contained Unit for Extra Drilling Jobs



This new Drillunit is a small, self-contained unit which can be mounted on a machine in any position for extra drilling and boring jobs. The spindle is direct driven by an electric motor, control is by push button. Traverse rate is over 400" per minute, feed rate up to 30" minute; capacity ½" in steel. Speeds can be varied by changing sheaves and belts. Multiple heads can be mounted to flange of quill. The unit weighs 175 lbs. and has few parts. Made by Drillunit, Inc., 637 Mt. Elliott, Detroit 7, Mich.

Material Cleans Soft Metals Safely

Oakite Products' newest specialized material is Composition No. 80-A, for use wherever an excellent cleaner offering a high degree of safety to aluminum, tin or other soft metals is required. The cleaner may be used in soak tanks or pressure spray washing machines. It is readily soluble in hot water, and rinses easily with hot or cold water. It does not exhibit any tendency to foam excessively, the company states. Helpful data on preparation of solutions, recommended concentrations, methods of application, etc., is available. Oakite is at 154 Rector Street, New York 6, N. Y.

MAXIMUM EFFICIENCY-DEPENDABILITY-AND ECONOMY



Ⓕ KLAMPSWITCHFUZ
30 to 600 amps, 250 volts AC or DC. SNUFARC 30 to 200 amps, 600 volts.

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Standardized

SWITCHBOARDS

Standardized Ⓕ Switchboards are noted for their safety, efficiency, dependability and economy of operation.

The result of more than 60 years of manufacturing experience, these sturdy, long-lasting and trouble-free power centers embody all the latest features in design and operating units to assure maximum service.

Standardized Ⓕ Switchboards are of three types—The Shutlbrak, a safety-type switchboard designed for frequent operating use; the Klampswitchfuz, which features a dependable hinged type, pull-out switching unit for disconnect service on lighting and power circuits, and the Circuit Breaker, another safety type featuring the latest developments in automatic circuit protection for main and branch feeder circuits.

All are built from standardized, pre-assembled units. This flexible system of assembling complete sections and units into standardized enclosures not only provides all the advantages of "tailor-made" switchboards but affords substantial savings in cost.

All standardized Ⓕ Switchboards are factory-assembled and shipped ready for connection to main and branch circuit cables. Units can be arranged singly or grouped, because all sections readily fit together. Removable end walls permit the addition of sections on either side. The number and capacity of switches are supplied according to specifications.

Want to know more about these efficient, long-lasting power centers? Your nearest Ⓕ representative listed in Sweets, will be glad to give you complete information.



Ⓕ SHUTLBRAK
30 to 1200 amps. 250 volts AC or DC and 600 volts AC.

Ⓕ CIRCUIT BREAKER
15 to 600 amps, 250 volts AC or DC; and 600 volts AC. For larger capacities air circuit breakers are used.



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PRC segmented tapes are defeating problems every day on assembly jobs requiring repeated use of equal-sized felt pieces. Each segment is as easy to tear off as a postage stamp from a roll. This cuts costly waste motion . . . saves time with each piece used. Segments of predetermined sizes also eliminate material waste. Adhesive back (either pressure-sensitive or solvent-activated) assures fast, positive application.

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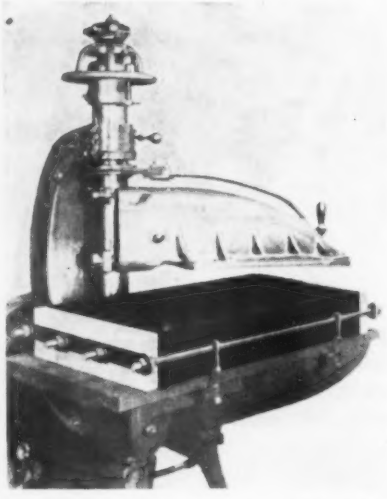
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Cutting Block Wears Evenly, Doesn't Chip



This cutting block, made of a combination of rubber and plastic, has a cutting surface that is extremely durable and has "self-healing" qualities. Called the Super-Duty Remblock, it is firm enough for cutting of light metals, yet has a resiliency that gradually "heals" over indentations made by cutting tools. As a result, it wears evenly and smoothly, without chipping. The block is complete in itself and does not have to be cemented to another surface. It can be installed in a few minutes, and is reversible. It will fit any clicking or dinking machine. It is available in five standard sizes from The Remington Products Co., 1507 Copley Rd., Akron, O.

Heat Seal Bag Labels

A new heat seal bag label-known as Imac BH, embodying the most essential adhesive properties required of bag top or bag header labels has been introduced by the Nashua Corporation, Nashua, N. H. The label has been formulated around the following specifications: maximum temperature tolerance; maximum pressure tolerance; instant complete activation; quick set, hot strength, paper splitting seal; non-responsive to moisture and high humidity; no adhesive squeeze-out between jaws of heat sealing machines; excellent storage characteristics; excellent behavior on all well-known types of printing presses; printable two-sides. Nashua says the adhesive is skillfully balanced in its formulation to provide the most of each of these properties without sacrificing other essential qualities.

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Southern States Iron Roofing Co., Birmingham

CALIFORNIA
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Braico Metals, Inc., Los Angeles
Tay-Holbrook, Inc., San Francisco
Union Hardware & Metal Co., Los Angeles
United States Steel Supply Div., Los Angeles
Western Metal Supply Company, San Diego

COLORADO
Marsh Steel Corporation, Colorado Springs and Denver
Salt Lake Hardware Co., Grand Junction

CONNECTICUT
American Steel & Alloys Corp., Hartford

DISTRICT OF COLUMBIA
Lyon, Conklin & Co., Inc., Washington

FLORIDA
Horne-Wilson, Inc., Jacksonville, Miami, Orlando and Tampa
Southern States Iron Roofing Co., Jacksonville, Miami, Orlando and Tampa

GEORGIA
Southern States Iron Roofing Co., Albany, Atlanta, Augusta and Savannah

IDAHO
Salt Lake Hardware Co., Boise

ILLINOIS
J. G. Braun Co., (Architectural only) Chicago
Sipi Metals Corp., (Ingot only) Chicago
United States Steel Supply Div., Chicago
Benjamin Wolff & Co., Chicago

INDIANA
Hubbell Metals Inc. Indianapolis

KENTUCKY
Southern States Iron Roofing Co., Louisville

LOUISIANA
Southern States Iron Roofing Co., New Orleans

MARYLAND
Clendenin Bros., Inc., Baltimore
Lyon, Conklin & Co., Inc., Baltimore

MASSACHUSETTS
Bay State Refining Co., (Ingot only) Chicopee Falls
Arthur C. Harvey Company, Boston
Pratt & Inman, (Wire, rod, bar, structurals) Worcester

MICHIGAN
Keslo Steel Corporation, Detroit
McDonnell Bros., Inc., (Architectural only) Detroit
Milton A. Meier Co., (Ingot only) Detroit and Grand Rapids

MINNESOTA
Vincent Brass & Copper Co., Minneapolis

MISSOURI
Hubbell Metals Inc., North Kansas City and St. Louis
Marsh Steel Corporation, North Kansas City

NEW JERSEY
Barth Smelting and Refining Corp., (Ingot only) Newark
Edgcomb Steel Corporation, Hillside

NEW YORK
Barth Smelting and Refining Corp., (Ingot only) Newark, N. J.
J. G. Braun Co., (Architectural only) New York
Edgcomb Steel Corporation, Hillside, N. J.
Rochester Smelting & Refining Co., (Ingot only) Rochester

NORTH CAROLINA
Southern States Iron Roofing Co., Raleigh

OHIO
The Atlas Metal Co., (Ingot only) Cleveland
G. A. Avril Smelting Corp., (Ingot only) Cincinnati
The Hamilton Steel Co., Cleveland
Mutual Manufacturing & Supply Co., Cincinnati
Vorys Brothers, Inc., Columbus

OKLAHOMA
Vinson Supply Co., Tulsa

OREGON
Woodbury & Company, Coos Bay, Eugene, Medford and Portland

PENNSYLVANIA
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Levinson Steel Sales Company, Pittsburgh
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SOUTH CAROLINA
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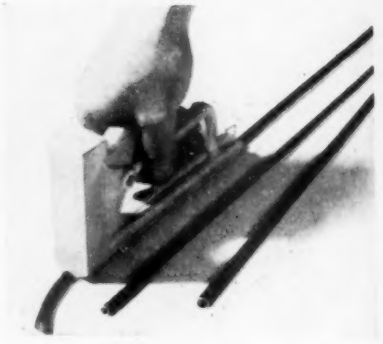
For blue—RCA-6199

Well-suited for use in scintillation counters to detect and measure nuclear particle radiation . . . and other applications involving low-level, large-area light sources. RCA-6199 has maximum response at about 4000 angstroms . . . has high sensitivity to blue-rich light . . . has negligible sensitivity to red. When the tube is operated from a 1000-v. supply, current amplification is about 600,000. Maximum diameter, 1 9/16"; maximum length, 4 9/16".

For prompt, efficient service— call your friendly RCA Tube Distributor.

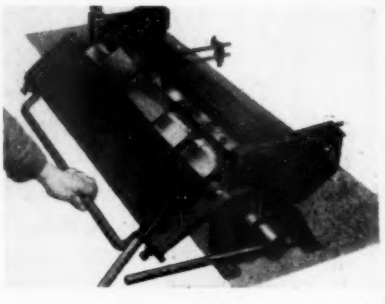
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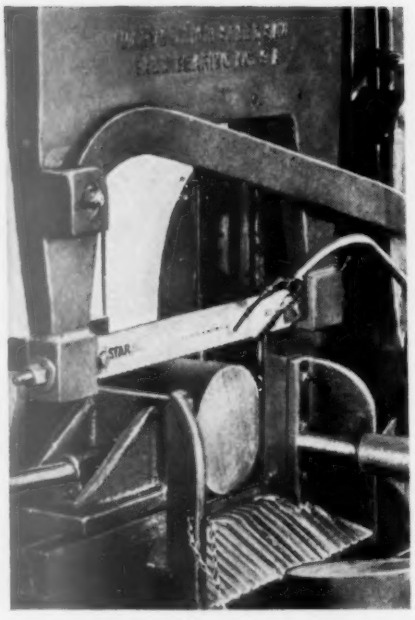
Maintenance and construction departments in your company will be interested in a new hand-held, automatic fastening gun for installing cables and hollow tube lines. Operated with one hand—leaving the other free to guide the lines—the machine packs the power of a big industrial stapler. It will drive bands around cables and tubes into hard or soft woods, plaster walls, flooring, joists and even mortar joints and building blocks. It drives a special extra-size band with leg lengths varying from 3/16" to ½". The machine is made by The Heller Stapler Co., 2153-E Superior Avenue, Cleveland 14, O.

Hand Operated, Bench Model Bending Brake



Dries & Krump Mfg. Co., 7400 S. Loomis Blvd., Chicago 36, Ill., has brought out a bench model, hand-operated, universal, box and pan brake with a capacity for any bending operation on sheet metal up to 18 gage and 24" long. The bending edge is made up of fingers in graduated widths fitted to a bar. The fingers are easily adjusted or removed as the work requires. They can be used in any combination anywhere along the bending edge for folding, box and pan work, and a limitless variety of straight bending operations. Positive cam-action clamp is quickly adjustable for different thicknesses of material. Angularity of bend is controlled by adjustable stop, assuring accuracy in duplicate work.


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High Speed POWER
Hacksaw Blades

To cut your initial power hacksaw blade costs at least 15%, tell your Distributor you want STAR "Moly" High Speed Power Blades.

STAR "Moly" Blades give you an extra dividend, too—cutting that's been proved faster and more efficient.

Over the years, *quality* above all has made STAR Blades industry's *preferred* blade—top quality steel, carefully heat treated, manufactured on specially designed equipment, to give you fast, economical cutting and long blade life.

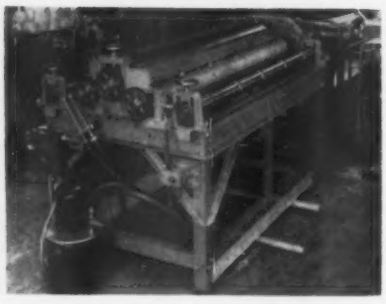
FAST, LOCAL SERVICE
from your STAR
Distributor's Stock

STAR "Moly" Blades are sold only through recognized Distributors—the men you know and have confidence in, the men who have inventories on hand to give you fast delivery where and when you want it. It is wise to buy whatever you can from your recognized Distributor.

1832

CLEMSON BROS., Inc.
MIDDLETOWN, N. Y., U. S. A.
Makers of Hand and Power Hack Saw Blades, Frames, Metal Cutting Band Saw Blades and Clemson Lawn Machines.

Automatic Printer For Sheet Metal



This machine was built by Industrial Marking Equipment Co., Inc., to take sheets or plate from a rolling mill, imprint the complete surface if necessary, and then pass the plate immediately to the oiling machine. It will imprint the complete surface of any sheet from .010" to 1.5" thick and up to 72" long. Handwheels provide and maintain very fine adjustments — for the inking system and for the rollers that handle different thicknesses of sheets. The entire surface of the sheet can be covered with type or rubber dies or logotypes. The machine will imprint at speeds up to about 500' per minute. Industrial Marking Equipment is at 454 Baltic St., Brooklyn 17, N. Y.

Variable Speed Drive Features Fast Changes



Less down-time on speed changes and increased production are obtained with a new variable speed drive using the Taper-Lock principle says Dodge Manufacturing Company, Mishawaka, Ind. Components of the drive are: a variable pitch motor sheave; a set of wide range belts; a companion sheave; a slide motor base. The Taper-Lock principle is used in the bushings for both sheaves and makes for speed and ease in speed changes. The drive is compact and the sheaves occupy a minimum of space on the shaft. Illustration shows typical application on a spinning frame. The operator adjusts the pitch diameter easily and quickly with a standard socket wrench on a single adjustment screw.

Throwover Panel For Emergency Lighting

A power failure can be a dangerous thing in factories, institutions, places of public assembly, etc. One way to be protected against it is by use of an automatic throwover panel that transfers electric circuits to an emergency source in case of failure by the normal source. (Throwover controls have been made legally mandatory for public buildings by many state legislatures). General Electric Company's control department, at Schenectady, N.Y., has brought out a new panel consisting of mechanically interlocked normal-source and emergency-source contactors, and a pilot contactor. Besides transferring circuits, the contactors also control standby power equipment, such as an auxiliary generator, turning it on and off at the appropriate times.

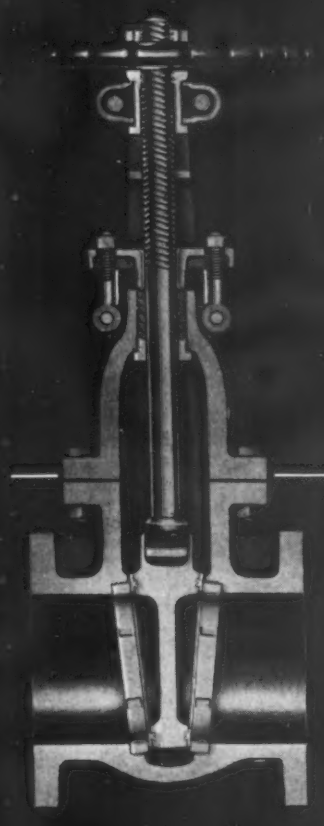
Sherman®
RUST PROOF
BRASS CLAMPS
and COUPLINGS



MAKE
INDUSTRIAL
HOSE
LAST LONGER

For full information write for the Sherman industrial brass fittings catalog.

H.B. Sherman MANUFACTURING CO.
BATTLE CREEK, MICHIGAN
INDUSTRIAL BRASS FITTINGS



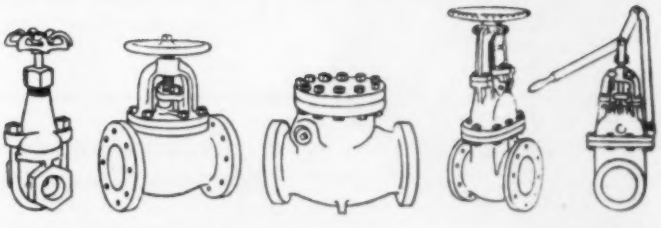
IRON

COMPLETE LINES OF IRON VALVES AND PIPE FITTINGS are manufactured by Walworth in a variety of types, pressure ratings, sizes, and patterns for general industrial use.

Walworth also manufactures complete lines of valves (including Lubricated Plug Valves), and pipe fittings made of steel, bronze, and special alloys.

These valves and pipe fittings, plus Walworth-made pipe wrenches total approximately 50,000 items and are sold through distributors in principal centers throughout the world.

Walworth engineers will be glad to help you with your problems. For further information call your local distributor, nearest Walworth sales office, or write to Walworth Company, General Offices, 60 East 42nd Street, New York 17, New York.



Iron valves in gate, globe, angle, check, and lubricated plug types are manufactured by Walworth. Illustrated is a sectional view of a Walworth No. 726F Standard Iron Body, Bronze Mounted, Wedge Gate Valve with flanged ends. This line of valves is available in sizes 2 to 30 inches. Similar valves of All-Iron type are also available.

WALWORTH

Manufacturers since 1842

valves . . . pipe fittings . . . pipe wrenches

60 East 42nd Street, New York 17, N. Y.

DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD

You Need Burlap! We Have it!

and here are 4 reasons why Bemis is Your Best Burlap Source . . .



1 You Benefit from Our Large Operations

Bemis is the largest burlap importer. Whatever the supply situation, Bemis customers are in the most favorable position.

2 You Benefit from Our Knowledge of Quality of Burlap

For many years, producers and users alike have accepted Bemis' grading of Indian burlap as the standard for the industry.

3 You Benefit from Our Knowledge of the Burlap Market

We follow the market daily in our regular operations.

4 You Benefit from Bemis' Large Facilities

Sixteen plants and seventeen additional sales offices, all strategically located, assure you a dependable source of supply.

Bemis is headquarters for all grades and weights of burlap . . . including widely-used 10-oz., and the popular, special-finish Angus, which only Bemis imports.

BEMIS BRO. BAG COMPANY

Bemis

Baltimore • Boise • Boston • Brooklyn • Buffalo • Chicago
Charlotte • Cleveland • Denver • Detroit • Indianapolis
Houston • Jacksonville, Fla. • Kansas City • Los Angeles
Louisville • Minneapolis • New Orleans • New York City
Memphis • Norfolk • Oklahoma City • Omaha • Phoenix
Philadelphia • Pittsburgh • Salt Lake City • San Francisco
St. Louis • Salina • Seattle • Vancouver, Wash. • Wichita

Safety Shoes Have Cushion Innersoles



Safety shoes made by Safety First Shoe Co. now feature air-cushion innersoles of genuine foam latex. Three smartly styled models for executives and foremen have the innersoles, which are also included on several styles of regular work shoes. The foam latex construction consists of thousands of tiny air cells which "breathe" to provide resilient, protective comfort under the foot. Sizes, widths, construction details, etc. are included in a new catalog available from Safety First Shoe Co., Dept. N41, Holliston 5, Mass.

Drill Gage Assures Longer Tool Life



The Drill "Point-Chek" is an optically precise gage for inspecting drill points in a matter of seconds. A simple hand tool, it shows whether or not drill lips have been ground to equal angles and equal lengths, so that holes of accurate size and more holes per drill can be produced. It assures both more accurate drilling and longer tool life, since correctly ground drill points are concentric, reduce wear, require less regrinding. Even slight differences between lip angles or between lengths of cutting edges can be easily detected with the tool. Made by F. T. Griswold Mfg. Co., Devon, Pa.

No designer today has to be sold on the advantages of anti-friction bearings. However they *used* to pose one serious problem to machine designers — that of the difficulty of mounting and removing interference fits, especially in bearings of comparatively large size. *Not so today.*

In the System of Hydraulic Removal, developed by SKF, OIL does the work. With simple equipment, you force oil between the shaft and the bearing, pressure breaks the fit, and the bearing slides off quickly, easily, safe from damage to bearing or housing. The same system eliminates the need for driving the tapered bore bearing *on* the shaft, or heating to obtain a shrink fit.

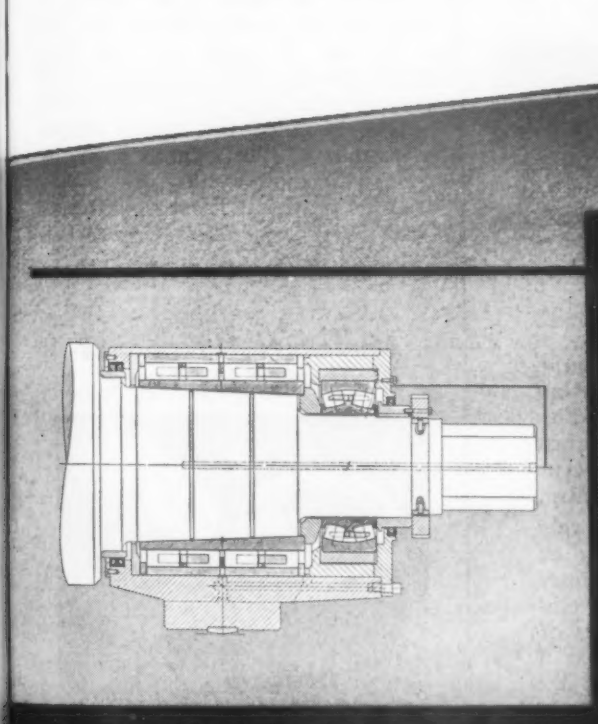
The accompanying illustrations show a few of the successful applications of this SKF principle —on roll neck bearings in steel mills, printing cylinder and paper mill roll bearings, on SKF "OK" Shaft Couplings, main and crank pin bearings in air compressors. The principle is also well suited to other equipment such as crushers, construction machinery, etc.

SKF's first patent application on the hydraulic mounting principle was made in 1943.

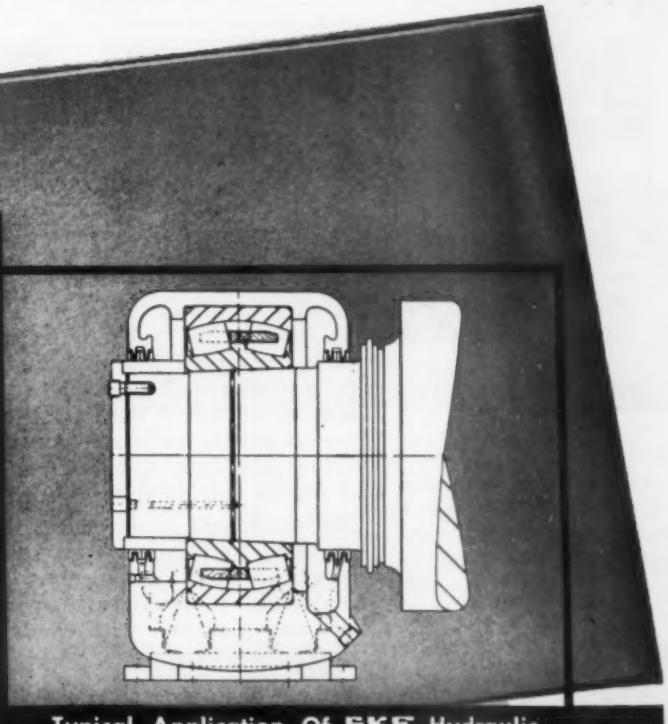
Since then, more and more equipment designers are taking advantage of this SKF "first." For further details, write for SKF Brochure No. 344.

SKF INDUSTRIES, INC., PHILADELPHIA 32, PA.
— manufacturers of **SKF** *and* HESS-BRIGHT *bearings.*

7361



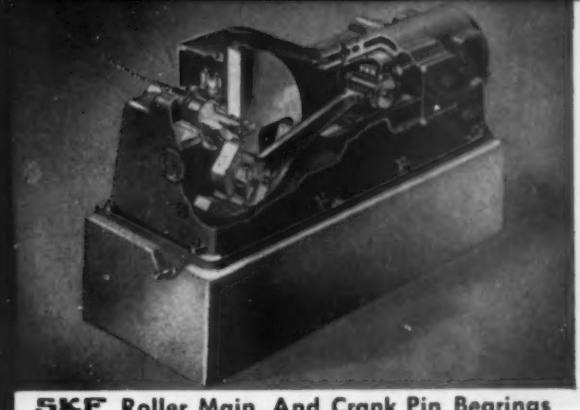
Typical Application Of SKF Hydraulic Mounting For Roll Neck Bearing.



Typical Application Of SKF Hydraulic Mounting For Printing Cylinder And Paper Machine Roll Bearing.



"OK" Coupling On 7 3/8" Marine Shaft, Depends On Pressure Only To Transmit Torque. Separable By SKF Hydraulic System.



SKF Roller Main And Crank Pin Bearings With Hydraulic Mounting Feature On A Pneumatic Compressor.

FOR SKILLED PERFORMANCE BY UNSKILLED OPERATORS

INDOORS and OUTDOORS YOUR *BEST* PROTECTION FOR FLAMMABLE LIQUID, GAS AND ELECTRICAL FIRES



Textile Lint Fires

ANSUL DRY CHEMICAL FIRE EXTINGUISHING EQUIPMENT



Flammable Liquid Fires



Gas Fires



Electrical Fires

HAND PORTABLES
•
WHEELED PORTABLES
•
STATIONARY EXTINGUISHERS AND PIPED SYSTEMS
•
TRUCK MOUNTS, TRAILERS AND SELF-PROPELLED UNITS
•

Ansul Dry Chemical Fire Extinguishing Equipment has world-wide recognition as preferred protection for flammable liquid, gas and electrical hazards. Yet a surprising number of Ansul Extinguishers are used to protect textile mills and paper mills against serious loss from surface fires such as occur in textile lint and combustible paper dust. The textile and paper making industries rely on Ansul Extinguishers for quick control of dangerous flash fires in class "A" (ordinary combustible) materials. Any remaining embers are quenched with small quantities of water, thereby keeping water damage at a minimum.

Surface fires in textile lint and combustible dusts spread rapidly. They need quick control. If you have serious lint or dust hazards, talk with your Ansul representative. He may have suggestions to reduce fire damage and lost production time.



ANSUL MODEL 20-B

Send for File No. 941. You will receive a variety of helpful printed matter. Included is our latest catalog which describes Ansul Extinguishers of all sizes — from the small Ansul Model 4 to Ansul Piped systems and Ansul 2000 lb. Stationary Units.



ANSUL Chemical Company
FIRE EQUIPMENT DIVISION • MARINETTE, WISCONSIN

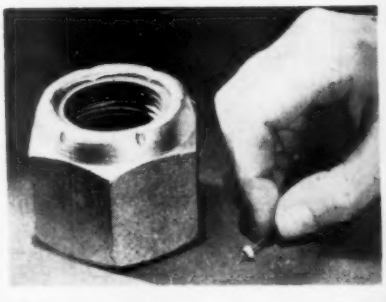
OFFICES AND DISTRIBUTORS IN PRINCIPAL CITIES IN THE U. S. A., CANADA AND OTHER COUNTRIES
ALSO MANUFACTURERS OF INDUSTRIAL CHEMICALS, REFRIGERANTS AND REFRIGERATION PRODUCTS

Portable Tripod Stands For Gravity Conveyors



Speedways tripod supports with 3″ hard rubber casters provide quick and easy movement of gravity conveyor sections. The conveyor stays on the stand without bolting, so it can be easily set up. The stands are available in small, medium and large models. Special stands can be supplied for special height adjustments. The stands can be used with most makes of conveyors. They are made by Speedways Conveyors, Inc., 1202 Niagara St., Buffalo, 13, N. Y.

Miniature Hexagonal Elastic Stop Nuts



Elastic Stop Nut Corporation of America has brought out a new line of miniature hexagonal stop nuts, as small as 0.109″ across flats. The nuts, available in brass and aluminum, have nylon locking inserts. ESNA believes this is the first integral locking collar type of self-locking nut manufactured to such minute dimensions. Smallest nut the company previously made was 0.250″ across. (Nut at left above measures 2⅜″ high, 2¾″ across flats, and is used on diesel engines, locomotives, and oil drilling equipment.) The new nut is expected to find wide use in specialized applications, particularly in the electronics and instrumentation fields. ESNA is at 2330 Vauxhall Rd., Union, N. J.

"LONG LIFE OF G-E IGNITRONS SAVES US HUNDREDS OF DOLLARS A SOCKET!"



Says

Arnold F. Weil, Chief Plant Engineer,
Solar-Sturges Mfg. Div.
of Pressed Steel Car Co., Inc.,
Melrose Park, Illinois.

"In several cases, our G-E ignitrons have been in operation more than three years. They've piled up work hours to twice or three times normal life. They have saved us many costly tube replacements, since we employ ignitrons extensively for welding, which is one of our main processes. Also, Solar-Sturges uses power tubes for induction annealing, and thyratrons and receiving tubes for control circuits. All these G-E types are dependable. They help us to keep machine outages at a minimum—another important factor in holding down our costs.

"General Electric tube service is prompt, and tube-maintenance counsel is available whenever we request it. We're more than satisfied!"



Electronic seam-welding seals the milk cans, waste receptacles, and metal cooking ware produced at Solar-Sturges—one of Pressed Steel Car Company's many factories for products ranging from auto bumper guards to complete railroad cars. G-E tube reliability helps to keep welder output high . . . maintenance needs and costs low.



● Get from your G-E tube distributor the benefits of (1) a long-lived, more dependable tube product, (2) fast deliveries out of local stocks, (3) tube-conservation help that will mean dollars saved through operating economies! Phone your distributor today! *Tube Department, General Electric Co., Schenectady 5, N. Y.*

You can put your confidence in—

GENERAL ELECTRIC

161-185

Experienced Buyers'

1st CHOICE FOR Toughness



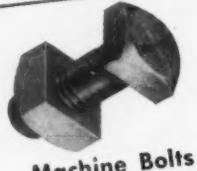
Cap Screws

Hex, flat, button or fillister heads. ¼" to 1" diameter and up to 8" long.



Set Screws

Square heads, cup points. ¼" to ¾" diameter and to 4" long.



Machine Bolts

Square, hex or countersunk heads. Rolled or cut threads. ¼" to 1" diameter and up to 60" long.



Stove Bolts

Round, flat and oven heads. ¼" to ½" diameter and up to 6" long.



Carriage Bolts

Round or special heads. Rolled or cut threads. ¼" to 1" diameter and up to 60" long.



Lag Bolts

Square heads, gimlet points. ¼" to ¾" diameter and up to 20" long.



Semi-Finished Nuts

American Standard light and heavy. Hexagon. ¼" thru 1¼".



Castellated Nuts

American Standard light castle hexagon. ¼" thru 1¼".

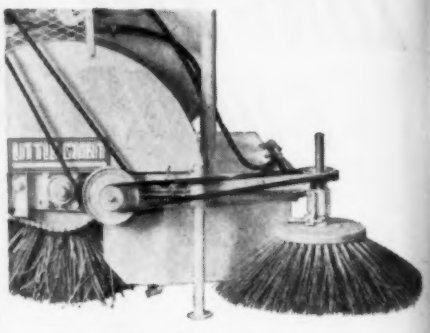
The handy TRIPLEX wall chart and catalog makes ordering easy. Write for yours today.

The TRIPLEX SCREW Company

5317 GRANT AVENUE • CLEVELAND 5, OHIO

TRIPLEX for TOUGHNESS

Side Brush For Fork Truck Sweepers



The "Yard Bird" fork truck sweeper can now be used for sweeping right up to wall, curbs, and gutters. The truck's maker, Little Giant Products, Inc., 1530 N. Adams St., Peoria, Ill., has brought out a side brush attachment that can be fitted to older models by using a special conversion kit. The side brush is engaged or disengaged by a clutch located on the drive shaft. A key lock holds the brush off the floor when it is not being used. The brush is made of coarse fiber with steel wire interwoven into the outside bristles. It is 24" in diameter at the floor line, and tapers to 10" at its wood base.

Magnifying Spectacles Leave Both Hands Free



Inspection that requires magnification, or close tolerance work that ordinarily strains the eyes, can be performed with these spectacles, leaving the operator's hands free. They employ the same optical system as a pair of binoculars or telescope, and give double magnification with clarity and a large field. The viewing field is observed at normal reading distance, and hunching close-up over a restricted area is unnecessary. The spectacles can be worn over regular glasses, and can be folded down for carrying in their case. The glasses are imported from France by Armco Mercantile Co., Room 154, 221 N. La Salle St., Chicago, Ill.



A century of achievement

Studebaker's big, modern South Bend plant symbolizes the century of growth and achievement which have earned for this company an enviable reputation for high quality products and world-wide recognition as America's fourth largest manufacturer of automobiles.

What's YOUR problem?



Russ Jenkins (left), lubrication specialist from Standard's South Bend office, and Studebaker's Paul Izdepski work closely together to get best results from Standard's fuels and lubricants.

Wherever your plant is situated in the Midwest, there is a Standard lubrication specialist close-at-hand who will work hand-in-hand with you on lubrication problems. Right in your neighborhood, too, you'll find a Standard office and warehouse. It makes immediately available to you a reliable supply of petroleum products. Phone your local Standard office soon, and find how you can profit through Standard's unique industrial lubrication service.

STANOBAR Grease is used throughout the Studebaker plant for lubrication of bearings in electric motors and oil pumps. Its high stability enables it to provide effective lubrication under a wide variety of operating conditions.

STANWAY Industrial Oil. In many of Studebaker's grinding machines, STANWAY Industrial Oil **No. 30H** answers a special need by serving both as a hydraulic oil and as a lubricant for ways and guides. The high stability necessary in a hydraulic oil and the oiliness needed in a way lubricant are uniquely combined in STANWAY.

How Standard's lubrication service works for Studebaker

• Look almost anywhere in Studebaker's vast plant at South Bend, Indiana, and you'll see Standard's lubrication service at work.

In one of the many operating departments, the chances are you'll find the Standard lubrication specialist who serves Studebaker. He is assigned to the South Bend area and is close-at-hand to give Studebaker the lubrication engineering assistance they need when they need it.

Almost any day at Studebaker's, you'll see a Standard tank wagon or truck delivering the petroleum products that help keep production rolling. Because these deliveries are made from a nearby Standard warehouse, they are prompt and reliable. Most of the petroleum products used in the Studebaker plant are stocked in this warehouse and are immediately available.

All along Studebaker's assembly and production lines, you'll find Standard Oil products at work. From one of the most complete lines of fuels and lubricants on the market, Studebaker has been able to select the petroleum products that exactly fit its needs.

All of these benefits—expert engineering service, fast and reliable deliveries, a complete line of high quality products—add up to one of the reasons why Studebaker has been a Standard Oil customer for over 50 years. Make Studebaker's experience the basis for putting Standard's lubrication service to work for you. Just phone your local Standard Oil (Ind.) office and ask to have the Standard Oil lubrication specialist in your area call on you.

STANDARD OIL COMPANY STANDARD (*Indiana*)



EFFICIENT CUTTING...
LONG BLADE LIFE...
plus at least
15% LOWER INITIAL COST
with
VICTOR "Moly"®
High Speed
Power Blades

Do your toughest metal cutting jobs efficiently, economically and *right* with VICTOR "Moly" High Speed Power Blades.

To begin with, you'll reduce your initial blade cost by 15%. From then on, you'll find additional savings in better cutting and longer blade life. Quality steel, carefully heat treated, fabricated on special machinery, has made VICTOR Blades industry's preferred blades for over half a century. And your Industrial Distributor will give you free copies of the VICTOR Metal Cutting Booklet which tells you what blade to use for every job. Ask him for it.

FAST SERVICE
for you from your
INDUSTRIAL DISTRIBUTOR

VICTOR "Moly" High Speed Power Blades are sold only through recognized distributors—the men you know and have confidence in, the men who have stocks on hand to give you fast service when and where you want it. You're wise to buy whatever you can from your recognized distributor.

1823

VICTOR

SAW WORKS, INC. • MIDDLETOWN, N.Y., U.S.A.

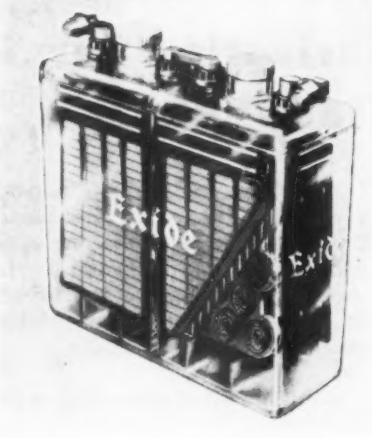
Makers of Hand and Power Hack Saw Blades, Frames and Metal Cutting Band Saw Blades

New Stop-Countersink Speeds Production



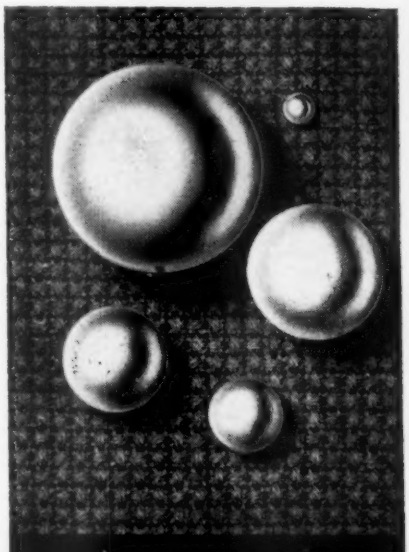
The non-rotating head feature of a new micrometer stop-countersink should speed production in almost every application, says Severance Tool Industries, Inc., 672 Iowa St., Saginaw, Mich. It makes it unnecessary to hold the stop unit from revolving with one's free hand. Positive-lock adjustment, in 1/1000" increments, is said to make precision countersinking easy. New method of fastening the unit to the operating gun gives the gun shorter over-all length, reduces overhang to a minimum, permitting work in closer quarters. Full range adjustment of the cutter is possible, from zero to maximum countersinking depth.

Plastic-Clad Batteries Give Long Life, Economy



The Electric Storage Battery Company (Philadelphia 1, Pa.) says you'll get these benefits with its new series of Exide-Manchex batteries: greater economies resulting from lower initial cost, increased efficiency, and long, trouble-free life. Known as Type CME, they are made with transparent plastic containers, and are available in both two-cell and three-cell units to meet the most rigorous service demands in stationary small power applications. Exide engineers not only reduced weight per ampere-hour output, but decreased over-all size of the units, making possible appreciable savings in installation space.

a metal ball PROBLEM?



Let STROM Work It Out For You



Whether it is a precision ball bearing or one of the other many ball applications in industry, your problem will not be entirely new. Strom has been in on many ball problems and knows the importance of the right ball for the job.

Strom has been making precision metal balls for over 25 years for all industry and can be a big help to you in selecting the right ball for any of your requirements. In size and spherical accuracy, perfection of surface, uniformity, and dependable physical quality, there's not a better ball made.

Strom
STEEL BALL CO.
1850 So. 54th Ave., Cicero 50, Ill.
Largest Independent and Exclusive Metal Ball Manufacturer

These "Firsts" Helped Westinghouse Customers

USERS OF WESTINGHOUSE TUBES GET FIRST BENEFITS FROM MANY NEW TUBE DEVELOPMENTS

These are only a few of the "firsts" that Westinghouse created in the electronic tube industry. In each case, designers using Westinghouse Tubes gained advantages by having first chance to use these innovations.

Today, Westinghouse still pioneers in electronic tubes and tube making. For instance, Westinghouse 40 KV and 20 KV rectifying tubes are under 9 ounces, only 2¾" high. Designers seeking the ultimate in space and weight savings will find them in these new WL-6102 and WL-6103 tubes.

Radical new developments in other power tubes and receiving and television picture tubes are now being engineered at the *NEW* Westinghouse Electronic Tube Division at Elmira and Bath, New York.

NEW SERVICE, NEW DISTRIBUTION

Westinghouse plans for Electronic Tube Division expansion are in operation. New service facilities, new warehousing policies, and new distributors are opening rapidly.

New merchandising methods will aid distributors in serving industrial users—many of these business-building programs are totally new in the tube industry. Here, as elsewhere, Westinghouse plans to provide industry leadership in service.

It pays in profits to deal with Westinghouse and with Westinghouse distributors. For full information on how Westinghouse can help you with problems of design, service, or supply, call your nearest Westinghouse representative, or write to Department E-112.



RELIATRON™ TUBES

YOU CAN BE SURE...IF IT'S Westinghouse

ET-95003

ELECTRONIC TUBE DIVISION

Westinghouse Electric Corporation
Box 284, Elmira, N. Y.

50,000 Razor Blades

READY FOR SHIPMENT

... in a minute!



HERE'S HOW: with Stanley Steel Strapping! Like hundreds of other prominent manufacturers, the Pal Blade Company of Plattsburg, New York depends on the Stanley Steel Strapping System for the safe, economical protection of products in transit. Result: *one* man securely fastens 50,000 PAL or PERSONNA razor blades in one case . . . all ready for shipment . . . in a minute!

HERE'S THE POINT. With Stanley Steel Strapping, you can quickly and easily protect *whatever* you ship against rough treatment, damage or pilferage en route. Your bales, boxes, cases and cartons can be neater . . . tighter. Your packaging and shipping departments can do a better job, faster. In fact, by combining the Stanley Steel Strapping System with other modern shipping methods, you can save time, money and materials in shipping almost any product . . . any distance. The complete System includes strapping, seals, tools, reels and accessories—*everything* for your application!

STEEL STRAPPING AND CAR BANDING SYSTEMS

STANLEY

Reg. U.S. Pat. Off.

HARDWARE • TOOLS • ELECTRIC TOOLS
STEEL STRAPPING • STEEL

WHY NOT TRY IT and see for yourself? Mail the coupon today.

Invite the Stanley Man to Call

Branch Offices or Representatives in 32 Principal Cities



THE STANLEY WORKS, Steel Strapping Division
211 Lake Street, New Britain, Connecticut

Please ask your representative to call and explain the advantages of the Stanley Steel Strapping System to me.

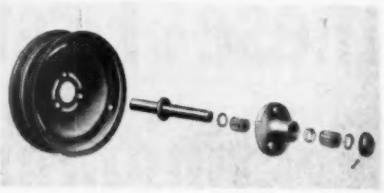
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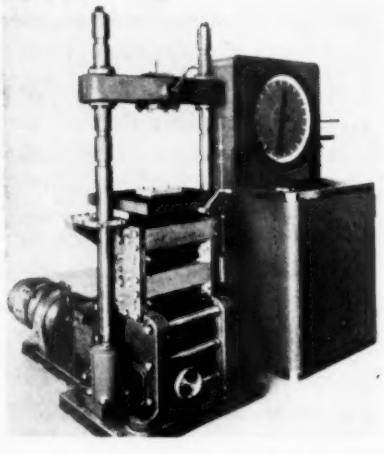
City ..... State .....

Packaged Economy Wheel For Light Applications



Small original equipment manufacturers will be interested in a new wheel-hub-spindle bearing assembly for light duties, says French & Hecht Divn., Kelsey-Hayes Wheel Co., 72 E. River St., Davenport, Iowa. The wheel package cuts down on engineering detail and procurement problems by its standardized approach. It is physically possible to mount up to and including 8.20 x 15 tires, even though this is in excess of what the wheel and spindle will carry. The wheel is intended for loads averaging 750 lbs. per wheel and applications such as portable grain elevators, light trailers, sprayers, etc. Samples are available.

New Type Universal Testing Machine



The Model FGT Baldwin-Emery SR-4 is described as a totally new type of universal testing machine, incorporating an electric weighing system and electronically-controlled, motor-driven loading mechanism. Among the "ideal" characteristics claimed for it by Baldwin-Lima-Hamilton Corp. (Philadelphia 42, Pa.) are these: accuracy and sensitivity corresponding to those of the best scales; high speed response of indicator or recorder to dynamic as well as static loads; extreme structural stiffness and lateral rigidity; wide range of loading speeds under precise stepless control. Further technical details available.

PARKWAY CABLE



Save the cost of duct systems!...with the most dependable Parkway Cable you can buy!

ROEBLING'S research staff is continually working at the job of product development. Our manufacturing facilities and techniques are constantly improved. That's why our Parkway Cable for distribution and general power supply circuits is today even more dependable than ever before.

Roebling Parkway Cable saves money right from the start because it is buried directly in a shallow, low-cost trench. It is made in single and multiple conductor – solid or stranded – in a range from 600 to 5,000 volts . . . furnished with metallic armor or a non-metallic *Roeprene* sheath, depending on the physical protection required. Types that pass all C.A.A. requirements for Specification No. L-824 for airport lighting are also available.

Large quantities of Roebling's full line of electrical wires and cables are needed in the rearmament program. We and our distributors will do everything possible, however, to meet your requirements. John A. Roebling's Sons Company, Trenton 2, N. J.

ROEBLING

ATLANTA, 934 AVON AVE • BOSTON, 51 SLEEPER ST & 5 PITTSBURGH ST • CHICAGO, 5525 W. ROOSEVELT RD • CINCINNATI, 3253 FREDONIA AVE • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST • DETROIT, 915 FISHER BLDG • HOUSTON, 6216 NAVIGATION BLVD • LOS ANGELES, 5340 E. HARBOR ST & 120 S. HEWITT ST • NEW YORK, 19 RECTOR ST • ODESSA, TEXAS, 1920 E. 2ND ST • PHILADELPHIA, 230 VINE ST • PITTSBURGH 1301 CLARK BLDG • ROCHESTER, 1 FLINT ST • SAN FRANCISCO, 1740 17TH ST • SEATTLE, 900 1ST AVE S. • ST. LOUIS, 3001 DELMAR BLVD • TULSA, 321 N. CHEYENNE ST • EXPORT SALES OFFICE, TRENTON 2, NEW JERSEY

Just A Box? Our P.A. Calls It A 'Production Booster'!



We had constant headaches with bulk storage of our products, slow stock taking and too much handling between final assembly and shipping. At our purchasing agent's suggestion we adopted the Metal Edge method, and discovered a packaging, materials handling and inventory control system that dovetails into our production perfectly, and saves us time and money, too.

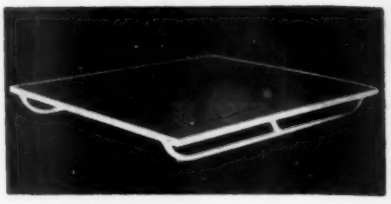
Our Metal Edge stayer operators make up fresh, clean boxes from pre-labeled flats as needed. From final assembly products are counted directly into boxes, which are bin stored ready for immediate shipment . . . with no intermediate handling. Now, we can *stack* 5000 packaged items in bins that used to take only 3000 bulk items. Order filling and inventories take less time, and our customers are enthusiastic because they handle only packages—never the merchandise itself in bulk.

NATIONAL METAL EDGE BOX CO.

PACKAGING • MATERIALS HANDLING • INVENTORY CONTROL

1214 Callowhill Street METAL EDGE *Philadelphia 7, Penna.*

All-Purpose Pallet of Tubular Steel



This heavy-duty tubular steel pallet weighs less than a similar one of wood construction and is priced competitively, says Econoweld Company, 1805 Webster St., Dayton, O. Two or more stout tubular skid runners are welded and braced to a rectangular angle-iron frame which encases and protects a tough laminated wood deck. Sled-like construction permits easy movement over uneven surfaces and obstructions, making the pallet adaptable for handling materials in storage racks of any design, in conveyor systems, and all phases of production and transportation. Pallets will be produced to meet each customer's specific requirements as to size and capacity.

Punch Press Features Easier Feeding, Safety



Model 150 deep throat power punch press, made by Whitney Metal Tool Company, Rockford, Ill. has a greater throat depth than previous Whitney models. It has a 24" throat depth, and its length of stroke is 2". It is also equipped with a non-repeat clutch which can be released for automatic feed. It is designed with flywheel in the rear, to permit easier feeding and to give the operator a greater margin of safety. Capacity of the machine is 10 tons, and it is rated at a speed of 175 strokes per minute. It has a 5-ton safety factor, and is mounted on a sturdy, all welded steel frame

INDUSTRY DEPENDS ON G-E TRI-CLAD MOTORS

REG. U.S. PAT. OFF.

Here are three typical tough jobs being done safely, economically, and without interruption, by G-E Tri-Clad motors. They help show why more than 10,000,000 horsepower of G-E Tri-Clad motors are serving American industry today.

WIDEST VARIETY

With the widest selection of standard motors obtainable anywhere, the Tri-Clad motor line offers ratings up to 2000 hp; all types of enclosures; gear motors, brake motors, and adjustable-speed drives—plus many other mechanical and electrical modifications to meet your requirements.

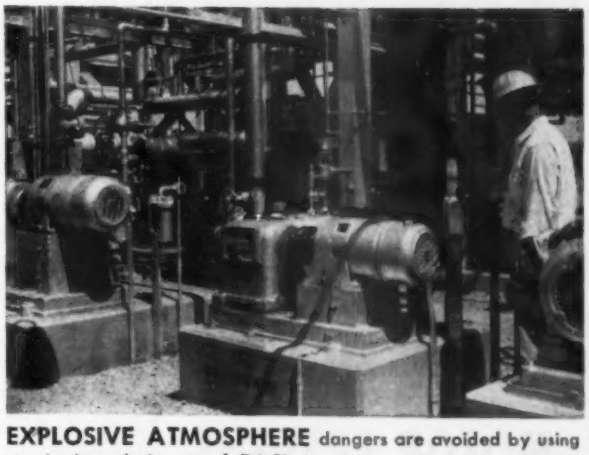
TRIPLE PROTECTION

You get triple protection with *every* Tri-Clad motor—against physical damage, electrical breakdown, and operating wear and tear. Completely enclosed bearings last longer because they can be relubricated if necessary—and *without shutdown!* For specific product information, use the coupon below, or contact your nearby G-E Apparatus Sales Office, authorized G-E Agent or Distributor.

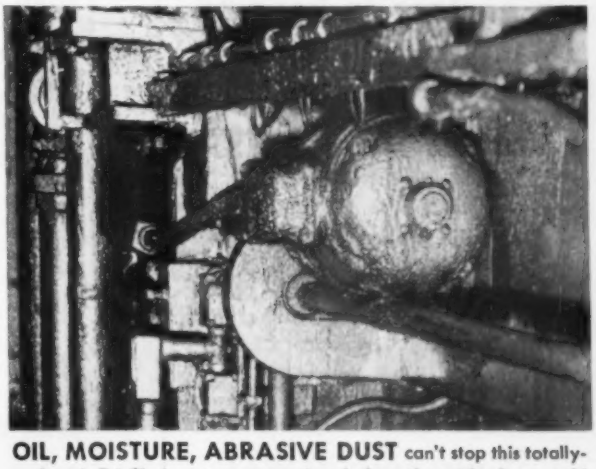
IMMEDIATE DELIVERY

Most standard G-E Tri-Clad motors are available immediately from stock. And the most complete sales and service network in the motor industry assures you prompt service by trained specialist and application engineers, for all your motor problems. General Electric Co., Schenectady 5, New York.

752-16



EXPLOSIVE ATMOSPHERE dangers are avoided by using standard explosion-proof Tri-Clad motors, such as these gear-motors driving water and hydrocarbon pumps in an oil refinery.



OIL, MOISTURE, ABRASIVE DUST can't stop this totally-enclosed Tri-Clad motor, operating below the strip in a cold strip steel mill. Motor is completely protected inside and out.

PROGRESSIVE MECHANIZATION...

a new G-E MORE POWER TO AMERICA program—motion picture and manual—case histories of the latest mechanization trends.



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Please send me the following on Progressive Mechanization:

☐ Free copy of the Progressive Mechanization Manual (GEA-5789)

Please send the following product bulletins:

☐ GEA-3580 (Open Dripproof Motors)

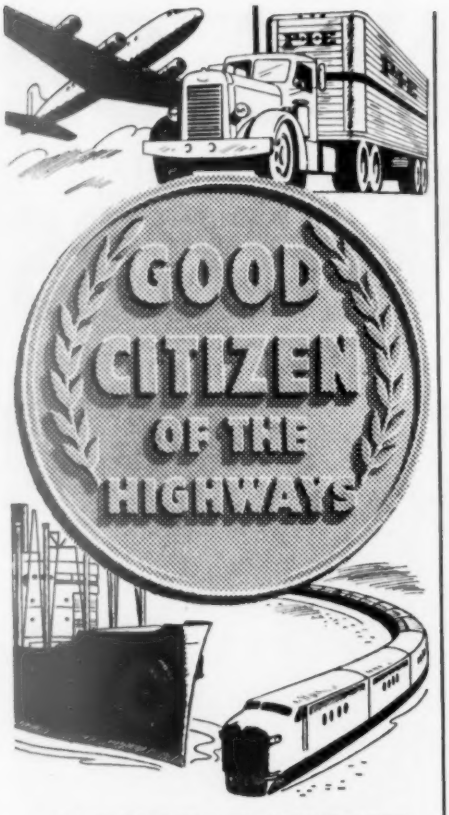
☐ GEA-4400 (Totally Enclosed Motors)

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MOTOR FREIGHT
a partner in keeping
AMERICA STRONG

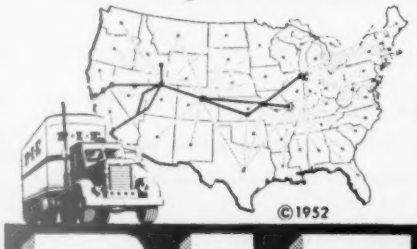
"WHEELS of PROGRESS"

New color motion picture available for group showings

Clubs, schools, civic groups will find this dramatic film an interesting and informative portrayal of the development and importance of motor freight transportation.

Please write to P·I·E, General Office, Dept. P, for full information

Shippers agree - it's P·I·E!

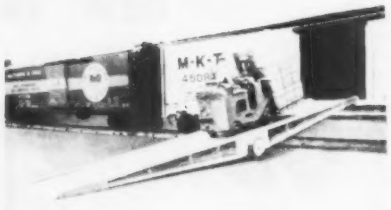


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Portable Magnesium Yard Ramp



Loading or unloading freight cars from ground level because no dock facilities are available is often a tough problem for an industrial plant. Magnesium Company of America, East Chicago, Ind., says its new portable magnesium yard ramp will let you do the job safely and efficiently. The ramp comes in five standard sizes, all 30′ long, but varying in width from 60″ to 70″. Capacities range from 6000 to 16,000 lbs. (capacity being combined weight of load and materials handling equipment.) A large wheel on each side of the ramp perfectly balances the weight, permitting one man to easily push and roll it into position.

Truck and Drain Rack Loads Automatically



Industrial users of solvents, cutting oils and detergents will be interested in this combination truck and drain rack. It loads automatically: truck is tilted against the drum, steel fingers sliding down to engage top rim of the drum. The truck is then rocked back to wheeling position. A slight downward push on the truck handles raises wheels and lays rack on the floor, providing convenient drain of drum. Handles can be detached, saving floor space. Weight of the all-welded unit is about 90 lbs. Made by Palmer-Shile Co., 12625 Mansfield, Detroit 27, Mich.

PROTECTION + ECONOMY =



Styles illustrated
527 Jacket
528 Pants
557 Hat

Protective Clothing by *Sawyer*

100% Waterproof — made with top quality base fabric *saturation-coated* first and then coated with 6 coats of Neoprene Latex.*

Rotproof — not affected by oils or chemicals, *positively will not blister, crack or peel.*

Tough as mule-hide — wears like iron, takes endless snagging, scraping, rubbing and still gives full protection.

Also: Three-quarter and long coats, aprons, coveralls and many other styles. All clothing made in black or yellow.

**Sawyer fabrics are coated by The Brunsene Company, a division of*

THE H.M. SAWYER & SON CO.
FROG BRAND
CAMBRIDGE
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Q. *How can they increase your sales?*

AMERICAN SCREW CO. • ATLANTIC SCREW WORKS, INC.
THE BLAKE & JOHNSON CO. • CAMCAR SCREW & MFG. CORP.
CENTRAL SCREW CO. • CONTINENTAL SCREW CO. • THE EAGLE LOCK CO.
ELCO TOOL AND SCREW CORP. • GREAT LAKES SCREW CORP.
THE H. M. HARPER CO. • THE LAMSON & SESSIONS CO.
NATIONAL LOCK CO. • THE NATIONAL SCREW & MFG. CO.
PARKER-KALON CORP. • PHEOLL MFG. CO.
ROCKFORD SCREW PRODUCTS CO. • SCOVILL MFG. CO.
SHAKEPROOF INC. • SOUTHERN SCREW COMPANY
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PERFECTLY MATED! Only Phillips Drivers are perfectly mated to Phillips Screws. Look for the name Phillips on the shank.

A. ***Through the Phillips Cross-Recessed-Head Screws that they manufacture.*** These famous fasteners are a mark of quality manufacture to your customers. Phillips Screws are nationally advertised in The SATURDAY EVENING POST as the clue to quality: X marks the spot. You'll find them a real sales-plus on your product. What's more, you save time, work, money with Phillips Wood, Machine, Tapping Screws or "Sems." They cut driving time up to 50%, set up tighter, add structural strength. With Phillips Screws you'll find production power driving practical, cut lost time due to accidents. Be sure to cash in on their many benefits.

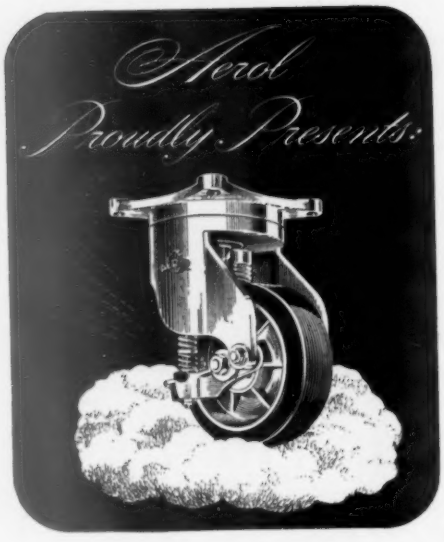
X marks the spot... the mark of extra quality

PHILLIPS *Cross-Recessed-Head* **SCREWS**

As Advertised in The Saturday Evening POST



THE FASTENERS OF TODAY . . . AND OF THE FUTURE



THE WORLD'S *finest* SHOCK-ABSORBING WHEEL AND CASTER

At last, here is a shock-absorbing wheel and caster that *actually* provides MAXIMUM shock absorption under any condition—even when truck or dolly is completely empty.

Aerol's new controlled knee-action unit is a completely trouble-free combination of light and heavy commercial standard springs. They will never unwind, fatigue or pop. Undue wear or breakage caused by "gyrating casters" is completely eliminated by the light spring which takes the stress when truck is empty or near empty—the heavy spring is for maximum or near maximum loads. Both springs can easily be replaced to convert unit to a different load capacity.

Available in the following sizes: 6"-8"-10" standard duty—10" x 12" heavy duty and 10"-12" dual wheels. Aerol-sealed and "lubricated for life"!

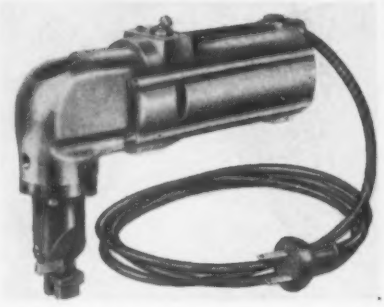
Aerol wheels and casters are available at dealers throughout the United States and Canada . . .
Please consult your local telephone book for further information.

CONCENTRATE ON **aerol**

AEROL CO., INC.
2424 SAN FERNANDO ROAD
LOS ANGELES 65, CALIFORNIA

NO WHEEL ROLLS LIKE AN AEROL

Portable Nibbler Cuts 14-Gage Stainless



This portable nibbler, called the "Little Wonder", will cut through 14 gage stainless steel, cold-rolled steel, galvanized iron, and softer materials without distortion on either side. It also cuts holes in tubes and ducts without damaging in any way the original contour. It can be used as a hand tool or easily mounted in a vise for bench operations. Minimum cutting radius is 7/8". The tool weighs only 7½ lbs., is 10" long, and comes with a universal motor, 3-conductor 8' rubber cord and connections. Anti-friction bearings are on all rotating parts. It is made by Fenway Machine Sales Co., Inc., 20 S. 15th St., Philadelphia 2, Pa.

New Models of Direct-Drive Air Tackers



An even dozen models of Duo-Fast direct-drive air tackers have been released by the Fastener Corporation, Chicago 14, Ill. The models drive staples from 5/32" to 9/16" long. They were originally designed for use on automotive upholstery. The trigger-operated tools are designed with a minimum number of working parts, and weigh 2 lbs. each. Driving power is regulated by adjusting the air pressure —heavier pressure for tough jobs, lower pressure for easier jobs—thereby conserving air supply. Light weight of the tacker makes it ideal for women workers, according to Fastener Corp. Simplicity of design reduces maintenance problems greatly.

Over 85% of the torque wrenches used in industry are

STURTEVANT TORQUE WRENCHES

Read by Sight, Sound or Feel.

- Permanently Accurate
- Practically Indestructible
- Faster—Easier to use
- Automatic Release
- All Capacities

in inch ounces . . . inch pounds . . . foot pounds (All Sizes from 0-6000 ft. lbs.)



Every manufacturer, design and production man should have this valuable data. Sent upon request.

PA STURTEVANT CO
ADDISON QUALITY ILLINOIS

Herbrand
PRECISION
DROP FORGINGS
. . . any size or shape up to 200 lbs.

Whatever your requirements in forgings, Herbrand is your most faithful source of supply . . . as it has been for hundreds of industries since 1881. Your inquiries are solicited.

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THE BINGHAM-HERBRAND CORP.
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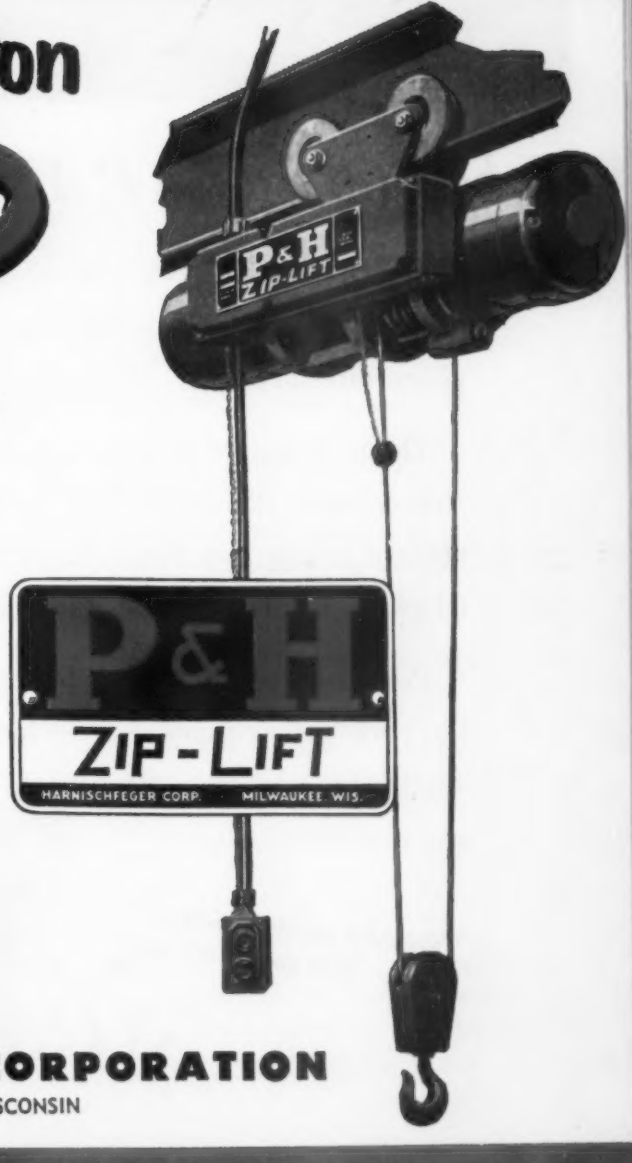


Heave-Ho by Push-button with a ZIP

handle it "thru-the-air"—faster for less

Do you still have places in your plant where skilled hands wrestle with heavy loads? That's tough on workers! Expensive, too! Consider the savings a Zip-Lift will bring you. One man can press buttons to handle loads up to 2,000 lbs. — faster, without effort — and at far less cost.

There are reasons aplenty why the Zip-Lift is America's fastest selling wire rope electric hoist. It has all the quality features that make it more usable, more dependable — and absolutely safe. Hang it up on a hook, jib, or trolley — beside machine tools, along assembly lines, around loading docks, receiving rooms, warehouses. The Zip will pay for itself over and over — and over again!



CALL YOUR ZIP-LIFT DEALER

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HARNISCHFEGER CORPORATION

4400 WEST NATIONAL AVENUE • MILWAUKEE 46, WISCONSIN

POWER SHOVELS • CRAWLER AND TRUCK CRANES • OVERHEAD CRANES • HOISTS • ARC WELDERS AND ELECTRODES • SOIL STABILIZERS • DIESEL ENGINES • PRE-FABRICATED HOMES



Take a tip from a P.A.'s secretary...

Take the hide-and-seek out of finding a new supplier by using the 'yellow pages' of the telephone directory.

The trade-marks of well-known brands in the 'yellow pages' direct you right to the distributors you are looking for. Their names, addresses and telephone numbers are listed for quick reference.

Purchasing agents all over the nation are using the easy 'yellow pages' way to locate suppliers. Try it! See how convenient it is!

AMERICA'S BUYING GUIDE FOR OVER 60 YEARS



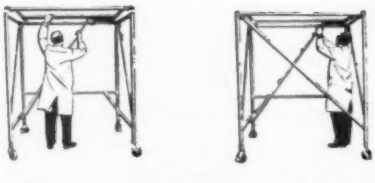
Tough Plastic Discs Mark Traffic Lanes



A new idea for plants that have problems in using paint for marking traffic lanes has been introduced in this country by Campro Sales Co. —3″ diameter tapered plastic discs in bright yellow, or white. The feather-edged discs are tapered up to a ¼″ high center, warning vehicle operators or pedestrians by sight as well as feel. Spaced approximately 24″ apart, they can be easily applied to any floor or road. The plastic used—Tenite II— is only slightly or not at all affected by oil, grease, hydrocarbons, or ordinary cleaning solvents. The discs have also been proved satisfactory for outdoor use. Campro is at 1300 Fourth Street, S. W., Canton, O.

Folding Aluminum Rolling Scaffold





This new scaffold, called the "Fold-A-Way", can be easily carried and quickly erected. It is made up of tubular frames, hinged to open sideways, so that one man is able to erect or dismantle the base section while standing within the base area, without danger of frames "folding under" during erection. Base, intermediate and top sections are all pre-assembled, have no loose parts, and unfold. The scaffold includes an internal stair-

(*Please turn to page* 168)



...use the right Behr-cat® Tape

The right tape for the job makes all the difference in production speed, efficiency, and costs. With the BEHR-CAT line you can select the tape best suited to your various masking jobs.

BEHR-CAT Masking Tape (General Purpose)

No. 111 — A crepe backed pressure-sensitive tape recommended for sealing, holding, stenciling, protecting, and masking prior to painting.

BEHR-CAT Masking Tape (High Temperature)

No. 112 — For masking objects prior to painting where the object will be baked in an oven before tape is removed. BEHR-CAT 112 strips off clean — doesn't leave adhesive residue.

BEHR-CAT Masking Tape (High Temperature)

No. 113 — For masking surfaces such as anodized aluminum and magnesium on which too high adhesion develops with ordinary tapes.

These masking tapes are but a few of the versatile BEHR-CAT Tapes. The others also perform important functions around your plant.

Get complete information about these and other BEHR-CAT Tapes. Write Behr-Manning Corp., Troy, N. Y., Dept. PU-12.

For Export: Norton Behr-Manning Overseas Inc., New Rochelle, N. Y., U. S. A.

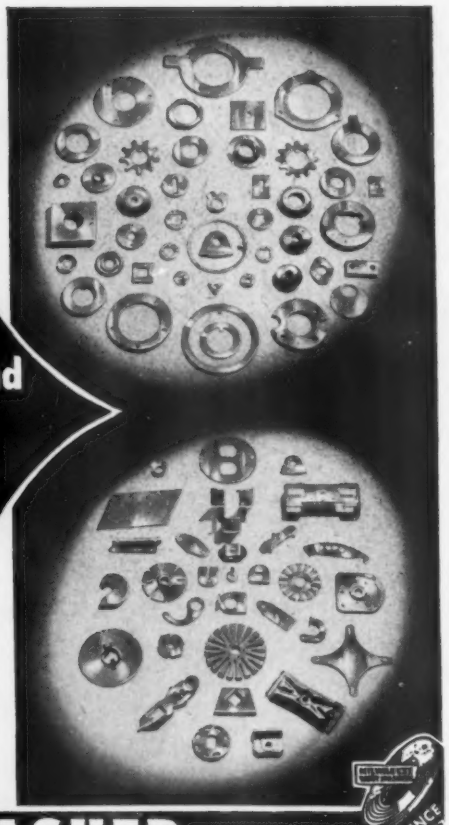
In Canada: Behr-Manning (Canada) Ltd., Brantford.

BEHR-MANNING®

BEHR-MANNING CORPORATION
division of NORTON Company

- COATED ABRASIVES
- SHARPENING STONES
- PRESSURE-SENSITIVE TAPES

Serving **INDUSTRY** *since* **1887**



WASHERS and STAMPINGS

Standard and Special Washers, of every description, from every kind of material, any desired finish . . . designed for every purpose . . . utilizing more than 22,000 Sets of Dies.

Let us Quote on Your Needs.

WROUGHT WASHER MFG. CO.
THE WORLD'S LARGEST PRODUCER OF WASHERS
2113 SOUTH BAY STREET • MILWAUKEE 7, WISCONSIN

HEAVY DUTY WHEELBARROWS AVAILABLE FOR PROMPT SHIPMENT!

You have been patiently waiting for Sterling Heavy Duty Wheelbarrows. Now, with a greatly improved material situation, we are in position to make prompt shipment on short notice. Sterling barrows are engineered for hard, everyday service. Phone, wire or mail your order — today.



Model D4S
Engineered to take hard punishment in industrial plants, railroads, foundries, etc.



Model DF4-S
Equipped with steel plate reinforcement for wheeling extra heavy loads in foundries, etc.

All Models equipped with either steel wheels or wheels having zero pressure tires or pneumatic tires.

STERLING WHEELBARROW CO., Milwaukee 14, Wis.

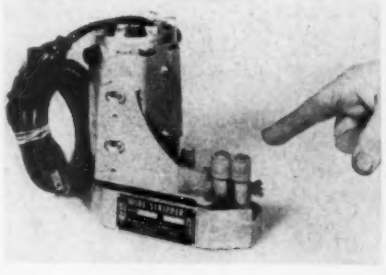
Look for this Mark of STERLING Quality

Sterling WHEELBARROWS

(*Continued from page* 166)

way for ascension. Legs are adjustable for use on uneven footing, and are fitted with casters which have a simple lever control for locking both wheel and swivel. Made by Patent Scaffolding Co., 38-21 12th St., Long Island City 1, N. Y.

Midget Stripper For Magnet, Resistance Wire



This miniature wire stripper is for removing film insulations from wire ranging from AWG 50 to AWG 40 inclusive. It also may be used in conjunction with the coil winding machine, mounted on a fixed or swinging bracket or track. It can be used in any position, horizontal or vertical. The stripper uses 5/8" diameter FybRglass wheels which develop sufficient frictional heat to melt the insulation and then wipe away the residue. This permits complete removal of the insulation without scoring or breaking the wire. The machine, known as the Type R, is made by Rush Wire Stripper Divn., The Eraser Co., Inc., 104 S. State St., Syracuse 2, N. Y.

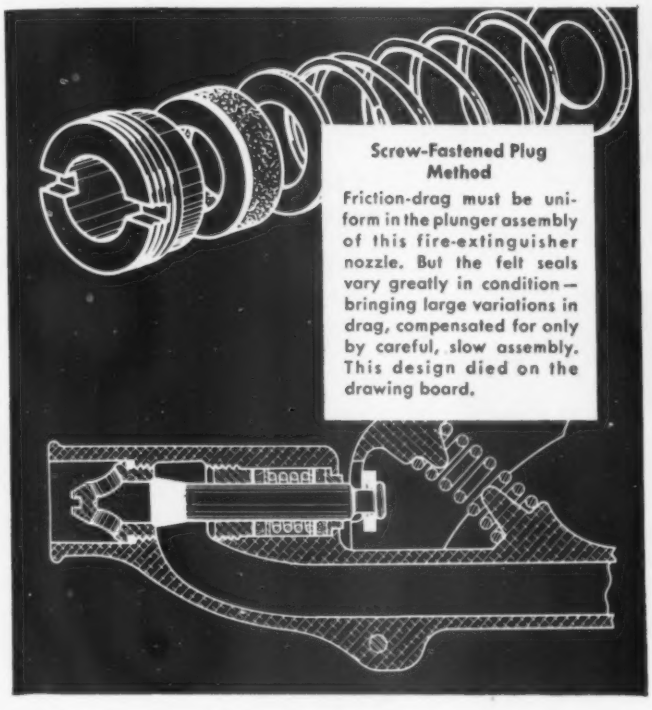
Extra-Sensitive Automatic Sprinkler



Globe Automatic Sprinkler Co. claims that this new automatic sprinkler provides the most sensitive, accurate and adaptable means ever developed to detect and stop fire. Globe says use of a solid or-

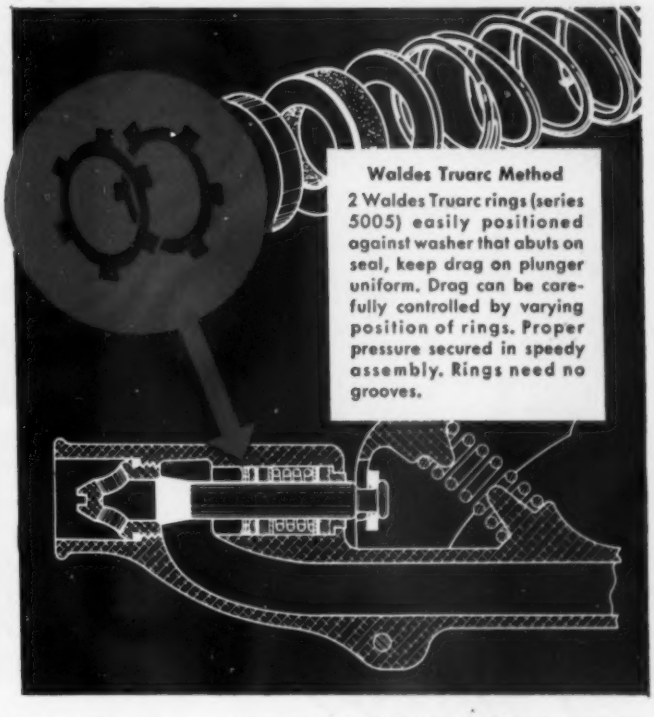
(*Please turn to page* 170)

2 Truarc self-locking rings replace threaded plugs. Save 6¢ per unit, speed assembly by 140%.



Screw-Fastened Plug Method

Friction-drag must be uniform in the plunger assembly of this fire-extinguisher nozzle. But the felt seals vary greatly in condition—bringing large variations in drag, compensated for only by careful, slow assembly. This design died on the drawing board.



Waldes Truarc Method

2 Waldes Truarc rings (series 5005) easily positioned against washer that abuts on seal, keep drag on plunger uniform. Drag can be carefully controlled by varying position of rings. Proper pressure secured in speedy assembly. Rings need no grooves.

Ansul Chemical Company's new watertight precision nozzle for their dry chemical fire extinguisher replaces conventional stainless steel plug with two Waldes Truarc Self-Locking Retaining Rings and washer. Rings hold entire nozzle packing securely in place — keep friction drag of plunger uniform. Adjustable in final assembly, Truarc rings speed production from 25 to 60 units per hour. They save 6¢ per unit in overall costs, 1/8" in length.

Redesign with Waldes Truarc Rings and you, too, will save on assembly, time, improve product performance, facilitate easier servicing of whatever you make.

Wherever you use machined shoulders, bolts, snap rings, cotter pins, there's a Waldes Truarc Retaining Ring designed to do a better job of holding parts together. They're precision-engineered . . . quick and easy to assemble and disassemble. They give a never-failing grip. Find out what Truarc Rings can do for you. Send your blueprints to Waldes Truarc engineers for individual attention, without obligation.

WALDES TRUARC RINGS MADE THESE SAVINGS POSSIBLE—

Discarded Design		Truarc Design	
Parts:	Cost Per Unit	Parts:	Cost Per Unit
threaded stainless steel plug	$0.0675	2 rings	$0.0146
Direct Labor	$0.0350	1 washer	$0.0280
	$0.1025		$0.0426

Total savings per unit with Truarc Rings $.0599

For precision internal grooving and undercutting . . . Waldes Truarc Internal Grooving Tool.



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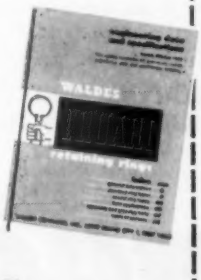
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P 124

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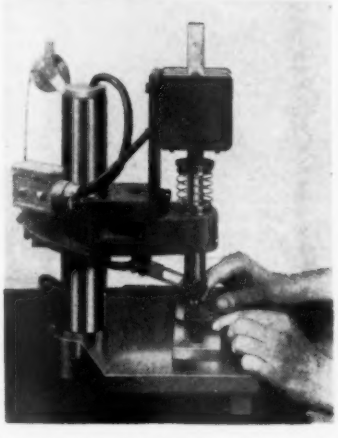
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(*Continued from page* 168)

ganic element as a fusible element permits the sprinkler to open at much closer to rated temperature than other sprinklers do. The sprinkler is manufactured with temperature ratings of 135, 160, 212, 280, 340 and 415 degrees. When temperature reaches rated temperature, the solid chemical fusible element turns to a liquid, opening the closure and permitting water to discharge. Central strut construction of the sprinkler cuts down susceptibility to injury. Globe is at 250 Park Ave., New York 17, N. Y.

Staking Machine Cuts Fatigue, Ups Production



Black & Webster, Inc., have powered this electric staking machine with a solenoid rather than the spring loaded trip used on many stakers—giving it fast, effortless operation. This plus other features is said to reduce operator fatigue to a minimum, and make possible a 25% to 50% increase in production. The portable machine, called the Electrostake can be used for any assembly-line operation where two or more assembled parts must be pressed firmly together and then staked or riveted with a sharp blow. It will do riveting, eyeletting, upsetting and rolling. It is operated by lightly touching a foot treadle, leaving both hands free. Black & Webster, Dept. N56, is at 445 Watertown St., Newton 58, Mass.

Also Noted . . .

The L. S. Starrett Company, Athol, Mass., offers a new **Vernier height gage** which will take accurate measurements over a full 12″ range in thousandths of an inch. (A Vernier gage with only 12″ of graduated scale cannot be read with accuracy beyond 11″.)

(*Please turn to page* 172)



ScotTissue Towels save more because they do more

SAVE TIME!
Since one ScotTissue Towel dries both hands quickly, there are less washroom "traffic jams." Workers are able to get back to their jobs a lot faster.

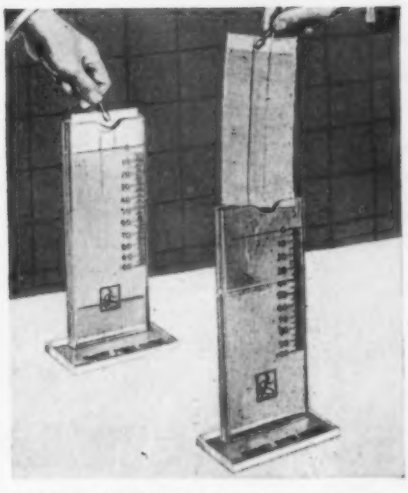
One towel dries both hands, saving time, towels, and maintenance



SAVE TOWELS!
Employees appreciate famous ScotTissue Towels—they're softer and stronger than ever—compare them against any other paper towel or service. Fewer ScotTissue Towels used means all-around savings.



SAVE MAINTENANCE!
With fewer ScotTissue Towels used, less storage space, and less servicing of dispensers and receptacles is required—reducing janitor costs. That's why companies who "slide-rule" costs prefer them.



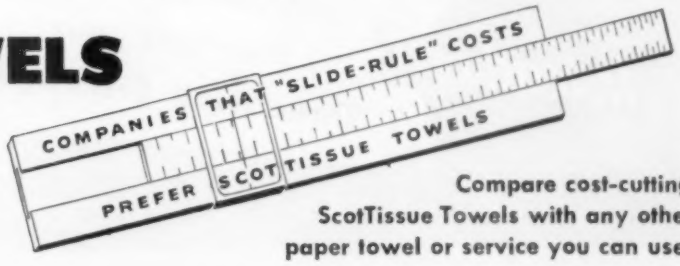
HERE'S PROOF!
In the "Thirsty Fibre" Meter Test, a ScotTissue Towel is immersed in water for 20 seconds. You see its quick absorption and great water retention—another reason why fewer are used per employee per year.

The right kind of washroom is one of the four most important essentials in good working conditions—according to a survey of employees from 400 plants.

Take advantage of our unique Washroom Advisory Service. We'd be glad to give you tested plans and specific suggestions for improving your washrooms. And if you would like a personal demonstration of cost-cutting ScotTissue Towels—the "Thirsty Fibre" Test—just write us on your company's letterhead. Address: Washroom Advisory Service, Scott Paper Company, Chester, Pa.

SCOTTISSUE TOWELS

Symbol of the right kind of washroom



Compare cost-cutting ScotTissue Towels with any other paper towel or service you can use!

"ScotTissue," "Thirsty Fibre," "Washroom Advisory Service," Reg. U.S. Pat. Off.



Kemisol "A" is a **chemical solvent** for removing all traces of oil and grease from metal parts. It is neutral, odorless, non-toxic, non-inflammable, and harmless to human skin. It is non-corrosive to aluminum, brass, copper, and most other non-ferrous metals. Samples available from Wayne Chemical Products Co., Copeland &MCRR, Detroit 17, Mich.

Bar-Ray Products, Inc., 209 25th St., Brooklyn 32, N. Y., says its new **lightproof shades** can quickly turn any room into a darkroom. They bar light so completely that x-ray films and sensitive photographic plates can be exposed without damage. They do not interfere with ventilation when in use. Deep metal side guides assure tightness.

A quick-drying **plastic flooring compound,** Rezilo, can be used to repair or resurface wood floor surfaces without the use of metal binders. Its resilience is a big advantage in areas where personnel walk and stand, as well as for those areas subjected to heavy trucking. It is furnished ready to use without mixing or thinning. Made by Monroe Co., Inc., 10703 Quebec Ave., Cleveland 6, O.

If **static electricity** is a problem with you, the De-Stat Cloth may be the answer. With a simple wipe it removes all static charges and prevents their recurrence on such materials as plastics and plastic-base paints, synthetic and natural rubbers and rubber-base paints. It is also effective on many synthetic fabrics. Kept free from dirt, it can be used indefinitely. Made by Globe Laboratories, Sherman Oaks, Calif.

A new **hardness tester** for use on steel alloys and other metals in the range of from 25 to 65 Rockwell "C" scale can be carried in the pocket. It is very fast in operation, since it is a direct reading device that requires no further calculations. Made by Pacific Transducer Corp., 11921 West Pico Blvd., Los Angeles 64, Calif.

Many diversified uses for Dynel-Mat, multilayer webs of **compacted Dynel fibers,** can be expected says The Felters Company, 210 South St., Boston, Mass. Highly resilient, it is also resistant to destructive action by chemicals, fungus and insects. The company says it is suitable for lining, cushioning or filtering uses involving severe exposure conditions.

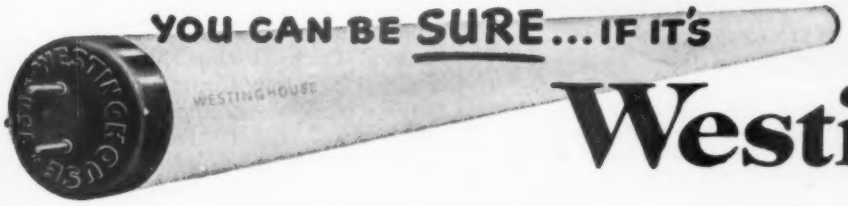


Twins at birth, but not at 60

Like twins, it's hard to tell a Westinghouse fluorescent lamp from any other brand, or from older Westinghouse types. Except for the new Westinghouse bump-base, they all look alike. But as they grow older, the new Westinghouse stays younger longer. At 7500 hours, or about 3½ years of normal use, the new Westinghouse lamps still give you 75% of their original light output.

One reason for this longer life is the chemical phosphors used to coat the inside of the tube. These chemicals are processed and tested to remove life-shortening impurities. This purity also eliminates color distortion and change. The result is a longer, constant brightness throughout the life of the lamp.

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The Speed Steels—Speed Alloy hot rolled alloy plate, Speed Case (X1515) plate and Speed Treat (X1545) plate are a development of Holliday. Distributed by steel warehouses in key cities.

Work clothes made of the new Dynel fabric are available in an attractive shade of grey which is said to make stains and soil less noticeable, laundering easier. Called ChemKlos by Mine Safety Appliances Co., they are especially suited to industrial jobs involving the use of acids or caustics because the fabric resists corrosive chemicals, as well as wear, moths, mildew, shrinkage, snagging and tearing. MSA is at Pittsburgh 8, Pa.

Ease of application and complete uniformity of pattern feature a new type of **Hammer finish enamel** offered by The Monroe Sander Corp., 10-18 46th Ave., Long Island City, N. Y. Known as Sanco Hammer finish, it bakes rapidly to excellent adhesion, is chip and scratch resistant, and requires no primers.

Superset Tampatch is a material for high speed **repair of holes, ruts** and other imperfections in concrete floors. It can be dumped into a clean, bonded surface, and tamped firmly into place. The patched area may be placed in service almost instantly. Made by United Laboratories, Inc., 16801 Euclid Ave., Cleveland 12, O.

Flexrock Company, 3619 Filbert St., Philadelphia 4, Pa., is marketing a five-type **multi-purpose hose line,** one type of which will take the place of as many as seven types of ordinary hose. Flexrock says this new idea in hose construction will permit large industrial plants to standardize on one type of hose rather than be forced to carry many types.

Danger of fire in paint stripping operations is eliminated with a new **non-inflammable paint and varnish remover** made by The Craftint Manufacturing Co., 1615 Collamer Ave., Cleveland 10, O. It does not require heat, works rapidly, and any residue can be washed off with water so the metal can be repainted immediately. It can be used over again if not allowed to evaporate. Samples available.

An **industrial cleaner** called Once Over can be used on virtually every type of surface, says The Gerson-Stewart Corp., Lisbon Rd., Cleveland 4, O. A new formulation floats the dirt up and off the surface instead of merely dissolving and redistributing it. The cleaner is mild, and forms suds in the hardest water.

Office Equipment and Supplies section of PURCHASING Magazine

DECEMBER, 1952



Executive Office—Courtesy of Imperial Desk Company

PURCHASING MAGAZINE—A CONOVER-MAST PUBLICATION
205 EAST 42ND STREET, NEW YORK 17, N. Y.

Electronics in the office . . .

Electronics Plus Standardization Basis of Cutting Office Costs

"IT seems certain that the current rapid development of electronic devices will materially affect the procedures of the office within the next few years in view of the emphasis being placed on reduction of overhead and distribution costs and the necessity for reducing the time required to prepare reports that point out to management where corrective action is needed", declared John A. Sonnichsen of the American Hard Rubber Co., New York, at the annual Management Conference of the American Management Association in New York.

"The overall effect of this mechanization of the office will, of necessity, be a sizable reduction in the number of personnel in the organization. This reduction of personnel, if accomplished over a short period of time, will present many problems to the office manager during the change-over period."

Describing changes and systems in the accounting department of his company, the major one involving the transfer of order writing and billing procedure from typewriters to tabulating equipment, he said "We are now in a position to handle without overtime, 200 orders in one day, as compared with a maximum of 100 on the typewriters, which required overtime. We have also handled 300 invoices in one day. We have not had a complaint from customers on delays in processing orders or invoices in over two years.

"Now, what is the connection between this change in routine and the coming electronic office? The answer can be given in one word —"standardization." We cannot adapt non-standard prices, units of measure, billing instructions, etc., to a machine in the office any more than we can secure varied pieces from a one purpose machine in the factory.

"We secured sizeable savings in our overhead by our changed routine, but I believe most of the saving resulted from the standardization required by mechanization, and very little from the transfer from typewriters to tabulating machines. As we continue expanding standardization within our own company on description of items, pricing policy, etc., we find the work grows lighter.

"Very few of the employees working on orders and invoices have a full time job on one phase of the work and by consolidation of jobs we have continuously reduced the organization and still have greater capacity than before. We have a long way to go before we can consider the job complete, but the fact is that this standardization will leave us with only the problem of adapting our present procedure to electronic equipment, when available. Thus the headaches of standardization will be behind us and we won't have to do both jobs simultaneously. "A custom or tradition that also adds considerable clerical cost is the use of the obsolete units of measure, dozens and gross."

A 23% device

"By the use of standard techniques used by all methods and procedures specialists we have reduced the size of the accounting organization from 52 people to 40 people, a decrease of 23%. At the same time by doing the simple routines on automatic machines the organization has learned to think about the routines in terms of machines. We believe this training will be very useful when more complicated machines become available to do more complicated routines and just a few highly trained individuals will run the entire office."

Forty Days to Eight Hours

Describing a Card Programmed Calculator, commonly referred to as CPC, by his company, E. J. Cunningham, assistant comptroller, Monsanto Chemical Company, said that financial statements which formerly consumed about 40 man days in manual preparation are now produced by the use of the CPC in from six to eight hours. It has been possible to reduce the number of personnel by three typists and two accountants as a result of preparing the financial reports on this electronic equipment. This reduction includes the elimination of former method of hand-posting the general ledgers. Also, the use of the CPC has helped in reducing the date of issuance of monthly reports from the 15th to the 5th of the month. "Although it takes only twelve minutes to prepare a statement of income on the CPC, we have gotten to the point where we



E. J. Cunningham

(*Please turn to page* 178)

there's a big difference in "paperwork" costs

for instance: Standard's DUAL FEED

Standard's Dual Feed on your business machine makes possible continuous, automatic operation in the preparation of two different forms as one.

Somewhere in your office, maybe you could write certain records at twice the present rate — at half the cost per finished document — with Standard's business forms and paperwork simplification devices.

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BUSINESS FORMS

Paperwork Simplification

consider this to be too slow," he said.

Mr. Cunningham said "that up to this time, almost all electronic equipment has been designed for use in engineering, mathematical and scientific computations. It usually follows that a relatively small amount of source data is necessary, with a great amount of computation relative to such data and a small output or answer desired. Accounting generally requires a voluminous mass of source information and smaller and simpler mathematical computations. Large outputs, normally printed, are needed. Because of this, computers built for scientific work have been of little use in accounting," he said.

"Although we feel that we have made marked progress, we recognize that we have not reached the optimum in the use of electronic equipment in our accounting operations. We hope eventually to be able to start with the very source of the information in the plants and proceed through the interim reports to the final financial statements automatically.

"For example, it is our hope to have a wage employe at our Texas City plant punch a time clock card which will be transmitted by wire or other means to a central computer located in our accounting office in St. Louis. All computations relative to the earnings of the employe, such as gross amount, payroll deductions and distribution will be made by the central computer. This information would be transmitted back to our Texas City plant by wire for disbursement to the employe, the information being transcribed directly onto a check from the wire transmission."

"We hope to be able to prepare our cost reports by product departments through the use of electronic equipment. This plan should enable us to reduce the time necessary for the preparation of our cost reports by product departments from 200 man-days a month to a few hours. Similar savings in time would result in all other accounting functions.

"Through the use of future electronic equipment we hope to have our financial reports prepared by the 2nd day of the month. The cost reports should be completed by the 3rd or 4th day of the month."

Automatic Office a Long Way Off

The completely automatic office is still a long way off, according to Prof. Howard H. Aiken, director of the computation laboratory, Harvard University. "Unbounded optimism has led scientists engaged in the development of scientific computers to make too many promises, forgetting the long hard road ahead," he said. "Businessmen have become even more optimistic than we have given them cause to be. They have expected more than we promised, and we promised too much.

"Electronic computers as they stand today cannot be used to build the automatic office. All we can do is take the techniques we have learned and build new machines. Little work has been done in developing machines for business applications. The hundreds of agencies interested in automatic computation, most of them financed by various governments, have concentrated on developing general-purpose scientific computers.

"Full-scale application of electronics in the offices in many cases will require completely new procedures. The new technology will not help if we are going to keep on doing things the old way. We must seek utterly new means of solving the old problems, not simply improve the old apparatus. The big problem is not of technology but of logic. If you give the machine designer the utmost opportunity to help you do your job, you will have to do the job differently."



Prof. Howard H. Aiken

Mr. Aiken pointed out that there is no advantage in making an adding machine go a thousand times faster if it is impossible to get information in and out of the machine any faster than now.

Another problem in business application of electronic apparatus results from the fact that no one person understands the situation as a whole, he said. The computer designer knows nothing about the insurance business, for example, and the insurance executive knows little about the detail of electronic procedures. The two must be brought together.

He cited an electronic mail sorter perfected by Bell Telephone Manufacturing Company in Antwerp, Beligum, as an example of the spirit in which application of electronics to industrial problems should be approached. In this machine, mailing addresses pass before operators on a pneumatic system, and the operators press the keys indicating the distribution route the mail must take. Four machine operators have replaced 70 mail sorters. The approach in this case, he emphasized, was not to improve the old machinery and methods, but to do the job with completely new ones.

"Electronic equipment will not do all the work for you," he said. "It will simply enable you to do more work than ever before. Use of technology will solve many problems, and also introduce a host of others you never met before."

Mr. Aiken ridiculed "what seems to be the general picture" of the electronic computer—that the office worker can come to work in the morning, turn a switch, wait for the machine to wake up, and then sit down while the machine translates a few poems from the ancient Greek, solves all the firm's accounting problems, and then rounds off the day with a few games of chess.

He also challenged the use of the word "think" in connection with the so-called electronic brain. Other equipment, he said, can add, subtract, multiply and divide, make choices based on experience, and carry out long chains of command without additional instructions. This still does not describe what the human brain does in creating new ideas. Computing machines are useful tools, not supermen, he emphasized.

(*Please turn to page* 182)

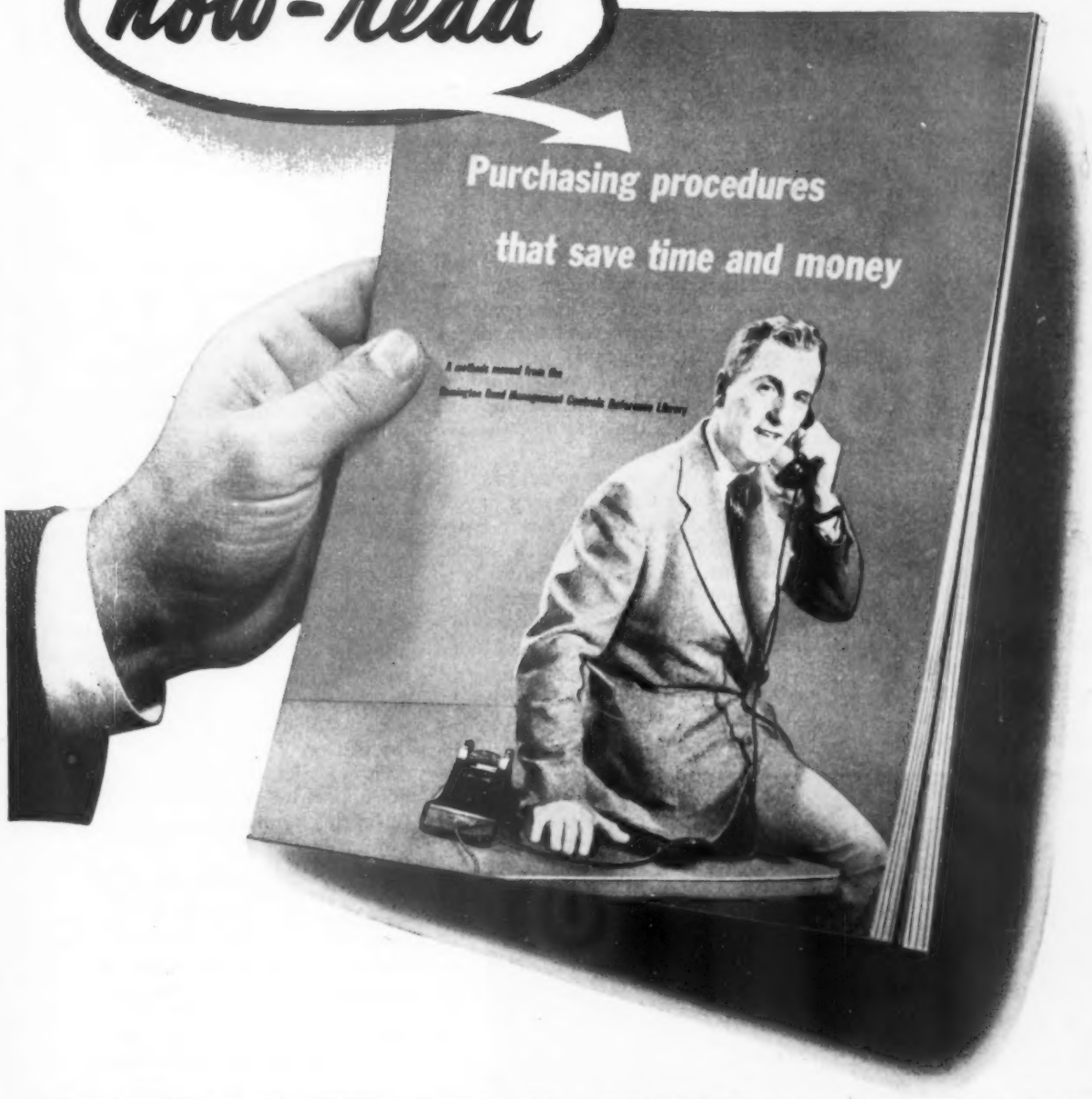
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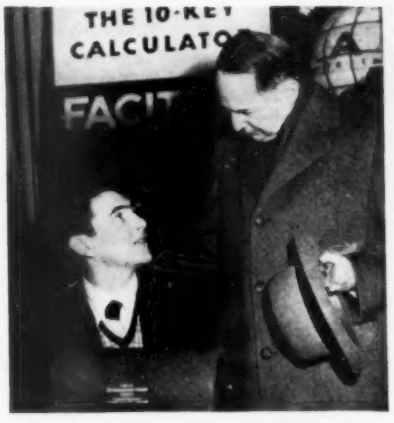
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New Machines, Techniques Impress Thousands of Visitors At National Business Show



General Douglas MacArthur congratulates Edward Eglowitz, legless veteran, at the booth of Facit, Inc. Facit featured an appeal to visiting executives to hire handicapped people.

More than 200 exhibits which, in the words of General Douglas MacArthur "measure the progess of civilization itself" were featured at the forty-fourth annual National Business Show, held in Grand Central Palace, New York, October 20-25.

A dramatic illustration of the speed and efficiency of modern office equipment highlighted the opening of the show by General MacArthur, now chairman of the board of Remington Rand, Inc. The general's 67-word talk was recorded by A. Gray Manufacturing Company Audograph dictating machine, transcribed to a stencil by a Remington Rand electric typewriter and run off on a Marr Duplicator Company machine, at 200 copies a minute. It took just six minutes from the time the speech ended to the appearance of the first copy.

$7000 Desk

Other products for increased office efficiency ranged from a $7,000 "push-button" desk with built in telephone, radio, liquor cabinet, ice trays, etc., made by Brenner Desk Co., down to the compact, efficient Rite-Line copyholder made by Collister Corp.

A portable microfilm camera that microfilms records faster than any operator can feed them, drew a lot of attention. The machine, made by Diebold, Incorporated, sits on the desk, and will take records of mixed weights and sizes up to cardboard thickness. It is the first unit to have magazine loading.

Friden Calculating Machine Co. introduced its Computyper, a device that integrates an electric typewriter with a calculator via special apparatus. The desired figures obtained on the calculator are automatically recorded in tabulated form by typewriter at the rate of ten characters per second.

Remington Rand's impressive display contained numerous new developments including a printing calculator that produces figure facts, printed on a tape for permanent record; the Card-O-Matic punch with remote control sensing unit, a combination of punched-card methods and mechanized filing equipment; and its new Stub-Chek payroll system that is said to save up to 75% of the usual time for handling forms in a machine.



Friden's Computyper, integrated calculator and electric typewriter, is explained by industrial designer Hermann A. Richardson.

In conjunction with the Itkin Bros. Inc. exhibit, Arnot & Co. showed its new Partition-Ettes, packaged private offices. The units which are put together quickly and provide individual office space without the need for changing basic lighting or ventilation, are movable and free-standing. An acoustical type, designed to reduce noise was also shown.

A popular item at the show was the Edison V.P. Voicewriter, an individual dictating instrument that fits in a brief case like a book.

Charles Bruning Company showed a number of copying machines, including the Copyflex 14, described as the first desk-side machine to copy any size office form. The machine is virtually automatic, and requires no exhaust ducts or installation.

BOOKLET ON TITANIUM

"Titanium—the New Metal" is the title of Bureau Ships Journal (October) article describing development, present production, fabrication methods and problems. Listed: composition, designation and source of commercial titanium and alloys, nominal mechanical and properties of each. The article also makes comparative analysis of titanium, aluminum, stainless steel and other structural metals, and discusses the Navy program for utilization of the metal. Copy is available from Navy Technical News, Office of Information, Navy Department, Washington 25, D. C.



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Electronic Computers Cut Office Costs

The Shell Oil Company and other companies are exploring the possibilities of the "Giant Brain" electronic computers as part of their long range planning, and Shell is already passing from the state of looking to actually doing, said Matt W. Boz, assistant manager of the methods and statistics department of Shell Oil Company.

He noted that his company has already installed a comparatively small electronic computer which he said makes it possible to use electronics in small doses. He revealed that in one particular crude oil accounting problem, the small electronic computer cuts a 17-hour job down to 3½ hours. Comparable savings, he said, will result in other computing operations.

Mr. Boz described other applications of the computer as having reduced the need for a number of daily manual operations. One in particular, he stated, eliminated the need for a daily processing of run tickets, requiring five clerks to perform. The weekly machine time now required is 16 hours, four hours of which are calculating time and the balance on auxiliary machines which can be absorbed with present equipment.

Just this one application, he declared, indicates the significant savings in manpower which can be used through the use of electronic equipment. There is no doubt, he added, that the office as industry knows it today is changing in character and that the major change will come through the introduction of electronics.

Quality Control in the Office

Quality Control In the Office, was the subject of an interesting panel discussion at the Office Management Conference. Simon Collier, Director of Quality Control, Johns-Manville Corp., New York, was chairman of the panel, members of which were Paul Holly, Clerical Operations Manager, Aldens, Inc., Chicago; Dale Lobsinger, Quality Control, Transportation System, United Air Lines, Denver; and Fred E. Shelton, Jr., Office Manager, The Standard Register Company, Dayton.

The panel members concluded that statistical quality control, in the office, as in the plant, can be used to improve work quality at less expense than by 100 percent inspection and with better morale. Mr. Collier expressed the opinion that quality control offers a means of recreating pride of workmanship, getting the individual to do a better job by showing him he is important, thus helping to cut down waste.

Errors Radically Reduced

United Air Lines, Mr. Lobsinger reported, was able to reduce the daily errors made by one of its offices from 1,200 to 200, only two months after installing statistical quality control. The Aldens Company, Mr. Holly said, "last month averaged one percent error in all its clerical operations, compared to a control limit of 2.9 percent."

Standard Cash Register, according to Mr. Shelton, has reduced the time spent in verifying invoices by 47 percent, and at the same time even with a reduced operating budget, has maintained the quality level it wanted. Accuracy in the customer records department was improved by 11.2 percent in two or three weeks of using sampling plans and control chart techniques.

Mr. Collier explained that essentially, statistical quality control involves checking random samples of work, charting the frequency of errors, determining at what points errors exceed those to be expected under the laws of chance, and taking action to correct mistakes beyond those statistically determined control limits. Quality control will not in itself reduce errors, it was emphasized, Mr. Holly stating "It is merely a thermometer which takes the temperature. We must prescribe the necessary remedy."

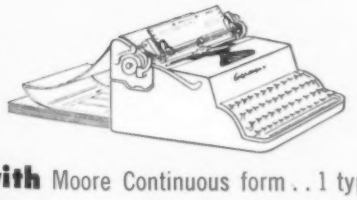
Mr. Lobsinger stated that United Air Lines has used statistical quality control for ordering and supplying of food to be served on planes, freight plane operations, controlling errors of baggage-handling, reservations, ticket issuance, and revenue accounting. By thus "learning more about what we are doing" he said, "we have been able to spot the reasons for frequently made errors and restrain misinformed employees or

(*Please turn to page* 184)



Blind to the facts—of wasting profit

She sees the light



with Moore Continuous form . . 1 typing



instead of 2 typings . . delay

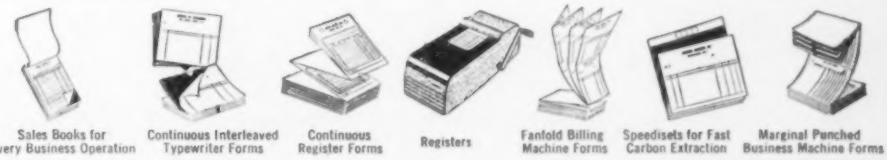
The boss's vision was a little blurred, too — he couldn't see how poor system cut *everybody's efficiency*, slowed filling of orders, mixed records. It made good accounting difficult.

A Moore man looked at the system that made simple jobs hard. In its place, he designed a 4-part Continuous Interleaved Form, marginal punched. In one typing it provides copy that: authorizes shipments to branch offices — advises branches — bills them — gives them a record of receipt — keeps a head office control. It saves typings, prevents confusion, makes operations dovetail.

Moore men suggest savings like this every day. Call the one nearest you. He offers the widest available range of forms, knows how to design *the right business form for every form of business.*

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Save 3 ways with EZC window envelopes. Write for free samples today. Dept. 155.

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ABOVE: No papers can be filed without laborious search through old style filing folders.

BELOW: The desired PENDAFLEX hanging folder is found instantly and papers filed in half the time!



Mail coupon for more information.

Oxford Filing Supply Co., Inc.
116 Clinton Road, Garden City, N. Y.
Please send Pendaflex catalog and name of dealer who will make a TRIAL (money back) INSTALLATION.

(*Continued from page* 182)

correct error-inducing procedures." Even "old hands", he said, frequently have been found to be living with "erroneous concepts of how to do their jobs." Individuals temperamentally unsuited to their tasks have been identified and transferred to other assignments.

United Air Lines has only three persons on its quality control staff; one man handling the analysis for an office of 100. Standard Register has one staff man who devotes only about a fourth of his time to quality control. The total clerical work force has been reduced by six since the program was launched. The Aldens company uses 20 inspectors for 4,000 office employees.

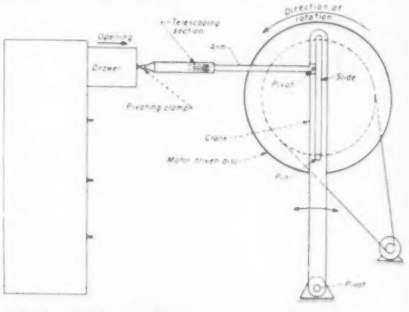
Mr. Lobsinger pointed out that if the program is properly sold to employees, they welcome the chance to improve and qualify for better jobs. By posting departmental quality records regularly, Standard Register promotes a competitive spirit among employees and encourages them to "break" the top of the chart. The control chart takes a positive rather than a negative approach by indicating the amount of good work performed rather than the number of errors committed. Employee interest is high, Mr. Shelton reported. He said that one of the principal values of quality control is its psychological effect on employees. "Even 100 percent inspection does not result in 100 percent accuracy", he emphasized. "Quality is never inspected into any job. It must be built into it."

MECHANICAL MUSCLE TESTS FILING CABINET DRAWERS

How much mileage is there in a filing cabinet drawer? The answer is more than a statistical exercise. It is of practical interest to anyone who buys office equipment. A prospective purchaser will want to know for example, how many times a loaded drawer can be opened and closed before the runners or bearings fail, or what type of construction will enable his clerical staff to operate the drawers with minimum effort.

Not long ago a large eastern city, about to purchase a large number of filing cabinets, wanted to make just such a comparison of the various brands of equipment. The information desired for the evaluation was: (1) the condition of the cabinet after a drawer carrying an 80 pound load had been opened and closed 50,000 times; (2) any increase in the amount of pull required to open the drawer after each 10,000 cycles; (3) the number of cycles before a specified maximum pull of 3-3/4 pounds would be required. In the test, the drawer was to open and close at a rate of 20 cycles a minute.

To make these tests called for either a right arm of Paul Bunyan proportions or the ingenuity of a mechanical engineer. The engineers at Sam Tour & Co., Inc., a New York testing and research laboratory, met the problem in labor-saving



This reciprocating arm operated by a motor-driven disc was devised to measure the service life and ruggedness of various brands of filing cabinets for a prospective large purchaser.

fashion. They built a mechanical muscle consisting of a driving motor, speed reduction system, crank, and arm to deliver the horizontal push-and-pull to operate the drawer. The apparatus is shown in the accompanying figure. The arm was built with a short telescoping section to permit the drawer to reach the fully open and closed positions without interference or assistance. A dynamometer attached to the arm gave readings of the amount of force required to move the drawer at several stages during the test.

This tireless file clerk tested each of the competitive filing cabinets while the engineers went about their other duties. The results showed that the cabinets, all of which had been tested under identical conditions, varied widely in performance. The number of cycles registered before an excessive pull was encountered ranged from 2650 to 43,700 cycles. The force required to open the drawers in the various cabinets ranged from 3½ to 18 pounds. Some cabinets had major structural defects.

On the basis of these tests, the city's purchasing department was able to choose the equipment having the best performance and longest service life. Moreover, thanks to a consulting engineer's imagination, these exhaustive tests were accomplished without what otherwise might have been one of the most exhausting episodes in the history of comparison shopping.

ROYAL EASTERN HEADQUARTERS MOVED TO STAMFORD, CONN.

Royal Typewriter Company, Inc. has transferred the headquarters of its Eastern Sales Division to Stamford, Conn. under the supervision of L. C. Hult, Eastern Sales Manager. The Eastern sales office had formerly been located at 2 Park Avenue, New York City. Mr. Hult will maintain headquarters at 741 Main St., Stamford.

CALCULATING MACHINES TO BE DISTRIBUTED THROUGH DEALERS

After forty years of selling adding, calculating and accounting machines exclusively through its salesmen, the Monroe Calculating Machine Company has adopted a policy of making a line of adding and calculating machines available through office machine dealers. The new policy was adopted on the theory that certain models of adding and calculating machines have become regularly accepted tools of business.

ANNOUNCE 1953 SCHEDULE-A-DATE CALENDAR



Announcement is made by the Schedule-A-Date Calendar Company, Ithaca 20, N. Y., of its 1953 desk calendar which tells at a glance future dates by days, weeks, and months, for an entire year. The new calendar helps the user to plan future meetings, schedule purchase orders, determine shipping dates, etc., with promptness and precision. The left hand page for each day has a clear, concise simplified listing of future dates grouped by days, weeks and months, for an entire year. "Six weeks from today", "Delivery in 90 days", etc., become definite dates on checking the calendar. The right hand page of the calendar is a regular memo page with the date, a calendar of the month, and space for notes. The pad pages are a standard 3¾" x 6", with holes spaced 2" for a side-opening stand.

IN THE FINEST OFFICES . . . CRESTLINE, OF COURSE



Christmas and all through
The New Year you, too, can enjoy the good looks
and good business of a CRESTLINE office like this.

Crestline
by: SECURITY STEEL EQUIPMENT CORPORATION
AVENEL, NEW JERSEY

Created by
SECURITY STEEL EQUIPMENT CORP., AVENEL, NEW JERSEY

Prominent Users of Strathmore Letterhead Papers: No. 102 of a Series



The finishing of Wiss scissors and shears involves a regular series of twisting, bending and peening operations which bring the blades into exact permanent alignment for sharp, clean cutting.

There is no short cut to QUALITY!

Science and invention have provided many improvements in the quality of shears and scissors since J. Wiss & Sons Co., now the largest manufacturer of *high quality* scissors and shears in the world, was first established over one hundred years ago. Yet, even with all the advances, nothing has been created that can take the place of the hands of highly trained and experienced individual craftsmen that are still necessary in 75% of the processes in producing these implements.

When *quality* is standard policy for a company... when it insists that every item that carries its name performs its function to the utmost satisfaction... you can be certain that, like Wiss, it will select a Strathmore letterhead paper to carry this quality ideal in its correspondence.

There are no short cuts to the job of selling a company's quality character. Let a Strathmore paper help to do the job of selling *your* quality standards. In these papers, too, a history of craftsmanship has built an air of quality that is hard to equal. Your supplier can show you some samples of your letterhead on Strathmore papers. You'll see for yourself the difference that quality makes!

Strathmore Letterhead Papers: Strathmore Parchment, Strathmore Script, Thistlemark Bond, Alexandra Brilliant, Bay Path Bond, Strathmore Writing, Strathmore Bond. Envelopes to match converted by the Old Colony Envelope Company, Westfield, Mass.

STRATHMORE *MAKERS OF FINE PAPERS*

Strathmore Paper Company, West Springfield, Massachusetts

YAWMAN & ERBE MFG. CO. ANNOUNCES PROMOTIONS

Announcement was recently made by Ralph Robinson, president of Yawman & Erbe Manufacturing Co., Rochester, N. Y., of the election at a regular meeting of the firm's board of directors, of Charles W. Schreiber to the position of vice president in charge of sales, and



Charles W. Schreiber

David C. Borlen to the position of vice president in charge of manufacturing. Each of the new vice presidents has been associated with the company for more than 25 years, having served in executive capacities at the home office and in the field.

PURCHASING PROCEDURES THAT SAVE TIME AND MONEY

Emphasizing the importance of the purchasing department and its place in the top ranks of management planning, a new booklet by Remington Rand Inc. entitled, "Purchasing Procedures to Save Time and Money", outlines several time and money saving procedures for fast, precision purchase action.

A feature of the book is a check list which gives the purchasing department a capsule survey of the important information needed for efficient operation. Checked answers point up the need for improving records and simplifying procedures.

Effective methods for processing requisitions, procuring bids, placing orders and the follow up of purchase orders are outlined and case histories based on actual installations are reviewed.

Following the theme of time and dollar savings in purchasing procedures a section is devoted to repro-

duction of forms which give better purchasing records, produced in less time, at a lower net cost.

A newly developed traveling requisition is pictured and explained emphasizing the importance of how planned inventory control permits efficient purchasing. A flow chart compares the merits of this traveling requisition and the usually used requisition form and illustrates the reduction of paper work and simplification of routines.

This booklet, known as X-1202 can be obtained by writing to Remington Rand Inc., 315 Fourth Avenue, New York 10, N. Y. or contacting your local Remington Rand Business Equipment Center.

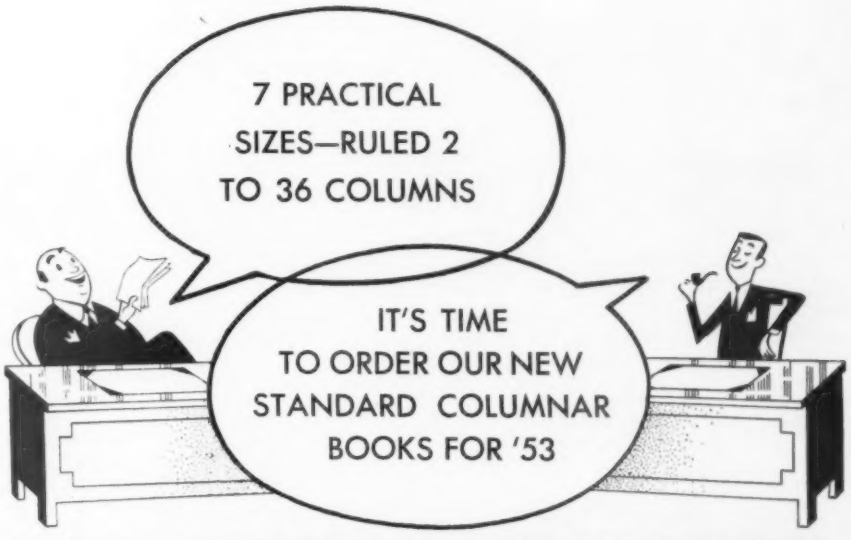
ROYAL METAL ENLARGES MICHIGAN CITY PLANT

More than 20,000 square feet of manufacturing space is being added to the Michigan City, Ind. plant of the Royal Manufacturing Company. The new addition will be used by the company's woodworking division, releasing space for the metal fabricating department. The company makes metal furniture.

STURDY OFFICE MACHINE STAND



The office machine stand illustrated is precision constructed of steel and wood, and has safety domes on its feet with special extrusions that positively lock the stand to the floor when in use. The stand is made by the Cramer Posture Chair Co., 1210 Campbell, Kansas City, Mo., who point out that there is neither swing nor sway even with the heaviest loads. A finger-tip lever lifts the stand off the domes so that it rolls easily on ball bearing casters. The overall top including drop leaves extended is 38″ wide, 17″ deep. The center panel of the top is 20″ wide, and the drop leaves are each 9″ wide. Height of the top from floor is 26″, and the overall leg spread measures 21¾″ wide by 19½″.



B & P COLUMNAR RULED BOOKS



No matter where they're opened, Standard B & P Columnar Ruled Books provide a flat writing surface, without the bothersome, time-wasting bulge along the binding.

Other "Hidden Assets" include exceptionally high-quality, white, rag content ledger paper, which promotes clear, crisp figures; uniformity of rulings with guide lines that simplify posting. Bound in finest book cloth, with warp-proof laminated boards. 150 and 300 pages. Ask your stationer to show you the complete B & P line.

Standard B & P Boorum & Pease product

FOR EVERY RECORD—A WAY TO KEEP IT. BROOKLYN 1, N. Y.

CORY CORP. ACQUIRES ASSETS OF AUTOPOINT CO.

Cory Corporation, Chicago, has acquired all assets of Autopoint Company, Chicago, manufacturers of mechanical pencils and plastic specialty items. The Autopoint plant is at 1801 Foster Avenue, Chicago. According to President J. W. Alsdorf of the Cory Corporation, Autopoint Company will in the future be operated as a Division of Cory Corporation. All administrative and manufacturing processes will be continued at the present Autopoint plant.

SAPPHIRE-POINT PEN ANNOUNCED BY WATERMAN

A brand new writing tool — a fountain pen with a polished sapphire as a writing point, is being introduced by the L. E. Waterman Company. Sapphires are among the hardest gems in the world to scratch or chip, and because of a special chemical affinity, ink flows over the surface of a sapphire more smoothly than a steel ball or any kind of metal point. The sapphires used in the new pen have been machined until they are perfectly round, within limits of one two-millionth of an inch, it is claimed. A new ink has been developed for use with the sapphire-point pen. Quick drying and smear-proof, it makes a blue-black line duplicating the writing of standard pens. It will not fade and cannot be transferred from one piece of paper to another. One filling is said to be sufficient for 90 writing hours.

ALL HARDWOOD TYPEWRITER AND UTILITY TABLE



An all hardwood utility and typewriter table featuring full depth drawer with pencil and eraser trough, the drawer being big enough to accommodate a supply of letterheads, second sheets and carbon paper, is announced by the Stempel Manufacturing Co., Dallas, Texas. The table is 32" long by 17" wide, and stands 27" high, and legs have glides. The table is offered in genuine oak or imitation walnut finish.

NEW MASTER PAPER FOR DIAZO METHOD DUPLICATING MACHINES

Users and operators of Ozalid and Bruning type reproduction systems will be interested in new master paper introduced by the Rhinelander Paper Co., Rhinelander, Wis., known as Master White Print. It gives maximum transparency to allow ultraviolet light to pass through. At the same time the paper has a high degree of optical capacity, making it remarkably easy to read from. It takes writing and printing perfectly, erases well, and lies flat without curl. Master White Print is available in three different qualities and price ranges, all three grades having the essential duplicating qualities outlined. These are Rhinomaster, available in 13 lb. folio only, in both rolls and sheet; Ripcomaster, available in 11, 13, 14, 16 and 21 lb., in both rolls and sheets; and Parchmaster, available in 14 lb. in sheet form only.

KOH-I-NOOR
LEADS & HOLDERS



2200 Koh-I-Noor Graphite Leads
17 Degrees of Accurate Grading
Recognized by Draftsmen the World Over for Dependable Service
Packed Six of a Degree in a Protective box
Smoothness, Strength, Uniformity combined with long lasting qualities

AND NOW

2200 KOH-I-NOOR FLEXICOLOR LEADS
"The Lead That is Really Flexible"
UNSURPASSED BREAKING STRENGTH
SEVEN COLORS AND COMBINATION OF RED AND BLUE — RED AND YELLOW

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All the above leads for use in 1504, 1511, 5611 or 5612 Holders

By the Makers of The Famous KOH-I-NOOR DRAWING PENCILS

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BUSINESS FORMS
CARBON INTERLEAVED
Continuous or Single Sets
Invoices • Sales Slips
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NO PRICE RISE ON
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TAX FORMS
for 1952

Consolidated Business Systems, Inc.

DEPT. 006
30 VESEY STREET, NEW YORK 7

NAMED SALES PROMOTION MANAGER OF IBM

Announcement is made by the International Business Machines Corporation of the appointment of Roger M. Bury as sales promotion manager. He previously was an assistant sales manager of the electric accounting machine division at the New York headquarters.

* * *

REMINGTON RAND INTRODUCE NEW MANUAL TYPEWRITER



A manually operated typewriter tailored to the needs of the user based on extensive laboratory and consumer tests, known as the Super-Riter is being introduced by Remington Rand Inc. Feature of the machine, based on extensive research and operator-testing, is the new machine's Tested Temp Touch which provides remarkably fast key return, the key action having been re-engineered to eliminate the possibility of collision of keys in flight. Another refinement is the simplified margin setting method and what is termed the Perfect Positioning Scale. The handling of difficult maintenance problems for which it may be necessary to open the typewriter for service, was solved by what is known as Fold-a-matic construction which allows the machine to be opened by removing a few screws and folding the assembly back, exposing the working parts.

* * *

WRITING INSTRUMENTS OF THE FUTURE

For 1975 use, a nuclear energized pen is predicted by researchers of the Parker Pen Company. "Hot" molecules will burn a written impression on surface paper particles to replace the inked line of today. A small photo-electric eye in the pen will govern intensity of the ray regulating line density and width. To achieve variety in color, the paper, far greater in tensile strength than today's, will be chemically treated.

(*Please turn to page* 190)

MESSAGES THAT MADE HISTORY • No. 12 OF A SERIES • COPYRIGHT 1952 • GILBERT PAPER COMPANY



She changed America's mind



And it wasn't easy. For 58 years with a head full of plans, a heart full of courage and a suitcase full of literature, Susan B. Anthony, the grand old lady of women's suffrage, stumped America. "Men their rights and nothing more . . . women their rights and nothing less."

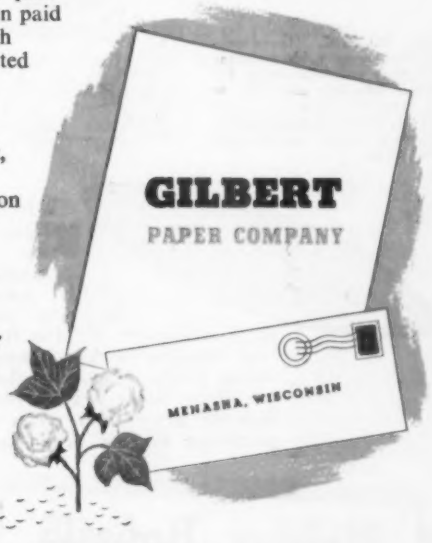
With indomitable fortitude she held to her purpose through ridicule, poverty, and even criminal indictment.

Once she was asked, "If you vote, are you prepared to fight?" "Certainly," she replied to her would-be tormentor, a prominent editor, "just as you did in the late war—at the point of a goose quill."

No greater tribute could have been paid Susan B. Anthony than the care with which the women's vote was cultivated in this election year.

In the selection of letterhead and envelope papers for office use, the "women's vote" should be important, too. Your stenographic staff will appreciate the sturdiness of new cotton fibre content Gilbert Quality Paper. It makes possible neat, clean erasures without scuffing or smudging, eliminating time-consuming retyping. Saves you money, also. And for your records as well as other form work, Gilbert papers have the strength to withstand constant handling and to remain erect in files for easy reference.

Ask your printer, lithographer or engraver for samples of Gilbert Quality Papers.



TUB-SIZED AIR-DRIED

BOND • ONIONSKIN • LEDGER
INDEX BRISTOL • MANUSCRIPT COVER • VELLUM • SAFETY
REPRODUCTION • BANKNOTE PAPERS

A good letter is always better-written on a Gilbert Bond

(*Continued from page* 189)

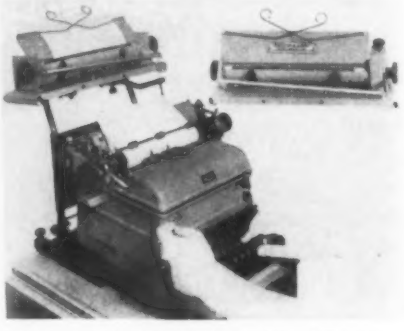
By the year 2000, according to the laboratory men, the fountain pen as we know it today will have entirely disappeared. By then it will be a compact recording unit which will receive and record vocalizations in an advanced form of shorthand. Since there are but 26 basic sounds in the English language, that advanced writing instrument (which can be folded into the size of a cigaret case) will have little difficulty in picking up and transcribing the fastest spoken English. It, too, will use the burning method to make its mark. This writing instrument, atom-powered, can never "run dry," requires no filling, and is the predecessor to the "thought transcriber."

NEW EDITION OF "HOW TO DESIGN A LETTERHEAD"

New and revised edition of its "How to Design a Letterhead" portfolio, is announced by The Crocker-McElwain Company, Holyoke, Mass. The book contains 28 new letterhead suggestions which are grouped under seven basic design classifications. The portfolio should be of interest to those who buy letterheads, design, print, lithograph or engrave them.

NEW COPYHOLDER FEATURES VARIABLE SPACING

A new copy holder which is instantly variable to accommodate any spacing ranging from fine newspaper print through six standard typewriter lines, was recently put on the market by the Selec-A-Line Company, 6523 Euclid Avenue, Cleveland. The holder is loaded in the same manner as a typewriter and rolls the copy through at preset spacings by a touch on the activating bar, or, the roll can be turned manually by means of knob on



either end. Each line of written material is clearly visible down to the last ½-inch of the paper for accurate copying. The adjustable paper bail prevents copy falling forward. The unit is lightweight and will fit readily in desk drawer when not in use. It is available in models to accommodate paper 9, 12, 15 or 18 inches wide. A stand is available which holds the copy above and behind the typewriter roll, as illustrated, the stand being adjustable to both height and angle. The activating bar is located to the side of the typewriter. Foot pedal control is also available.

NEW CAMERA INCREASES SCOPE OF XEROGRAPHY PROCESS

A new camera that reduces or enlarges an engineering drawing, chart or other subject by the xerography process directly on to an 8½" x 13" Xerox plate is announced by The Haloid Company, Rochester, N. Y. The new camera permits 50% to 150% size of copy reproduction. Multiple copies of a drawing, chart, report, or other data can be reproduced by a combination of zerography and the offset duplicating process in about three minutes including making of paper master.

Xerography is a dry, direct positive, electrostatic reproduction process which does not require water, chemicals, film, darkroom or sensitized materials. A black resinous

Greeks these days sing paeans of praise



121 ELLIPTIC. Immensely popular gray rubber eraser in handy elliptical shape for pencil and ink erasures on all types of work. A universal favorite among office workers, typists, artists and draftsmen.



When Greek writes Greek, there's no mistake from Alpha to Omega that can't be swiftly smoothed away the best way—the story's the same the world over: Weldon Roberts Erasers Correct Mistakes in Any Language. People everywhere praise them—buy them. Don't be without these finest erasing results. Buy Weldon Roberts Erasers, in styles to suit your own particular erasing needs, at your stationer's.

Weldon Roberts Erasers
Correct Mistakes in Any Language

WELDON ROBERTS RUBBER CO.
6th Ave. & No. 13th St.
Newark 7, N. J.
World's Foremost Eraser Specialists

IF YOU ARE NOT NOW RECEIVING A PERSONAL COPY OF PURCHASING EACH MONTH

You are missing in every issue of PURCHASING seven services that would cost hundreds of dollars if bought separately—

1. **Washington Report for Purchasing Agents**
2. **Poll of Purchasing Opinion on Current Purchasing problems**
3. **Price, Production, Inventory Statistical Analysis that help you foretell price changes**
4. **Inventory (illustrated) of new products**
5. **Forms that lubricate purchasing department operation**
6. **Free catalog service**
7. **Purchasing Legal Service—interpretation of latest legal decisions affecting purchasing**

Fortune favors the man well-informed in his own profession.

You can get the full benefit from the wealth of valuable information in PURCHASING by receiving it personally each month. Just fill in, clip, and mail this coupon.

PURCHASING, 205 E. 42nd St.
New York 17, N. Y.

So that I will receive PURCHASING without delay each month, and in order that I may keep and clip it, send it to me personally as noted below—$4 for one year in U. S., U. S. Possessions and Canada; elsewhere $10 a year.

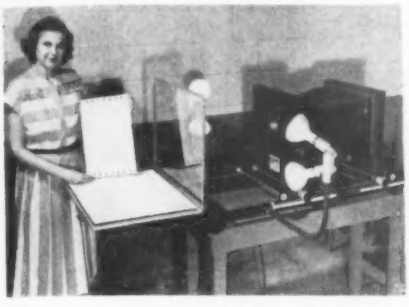
Mr. .....

Title .....

Company .....

Address .....

powder cascaded over the electrostatic surface of the specially treated zerographic plate makes the master



Xerox Camera No. 3 for 50% to 150% copy reproduction

plate. The complete equipment consists of three units—camera, copier and fuser. Each unit plugs into an A.C. outlet.

NEW VISUAL CONTROL DEVICE

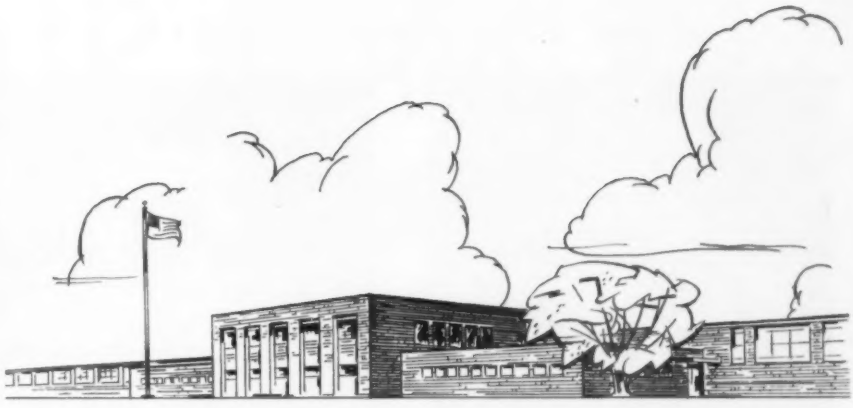


Basic unit of the system is a 15" x 30" enameled board

Color-keyed visibility, high speed operation and unusual adaptability to business charting problems are claimed for the new Victor Controla-Chart, recently introduced by the Victor Safe & Equipment Co., Inc., North Tonawanda, N. Y.

The basic unit of the system is a 15" x 30" enameled board which may be joined to others to accommodate any size record. The chart is designed for use on the office or conference room wall and may be kept up to date by one operator with a few minutes attention a day. Through the use of colored and printed clip-on signals, name tubes and sliding indicators the business executive can obtain a day-to-day picture of his operations, whether it be sales, production, personnel, inventory or budget.

SEE CLASSIFIED SECTION
PAGE 352



To better serve users of business forms we open a big, new plant

The completion of our 70th year of business is marked by the opening of one of the largest and most up-to-date plants in the United States for the exclusive production of continuous business forms. The new factory is located in South Hackensack, N. J., and has 136,000 square feet of manufacturing floor space. It will enable us to speed up delivery of custom printed and stock forms substantially.

Let us demonstrate business forms printing service at its best. Ask us to quote on your current requirements.

Or if you have a continuous forms problem, give us enough information on the coupon to enable us to help you. Mention the kind of forms in which you are interested, nature of your business and types of machines used. We will then send you a folder of selected forms that will show you how we have helped other firms solve a similar problem. They may contain a worth-while idea for you.

Autographic **BUSINESS FORMS**

Founded 1883

AUTOGRAPHIC REGISTER COMPANY
219 7th Street, Hoboken, New Jersey

We would like to receive a folder of sample continuous forms..... (Kind of forms)

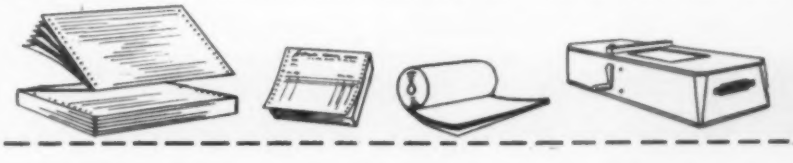
Forms will be used on..... (Type of machine)

The nature of our business is.....

NAME.....POSITION.....

COMPANY.....

STREET.....CITY.....STATE.....



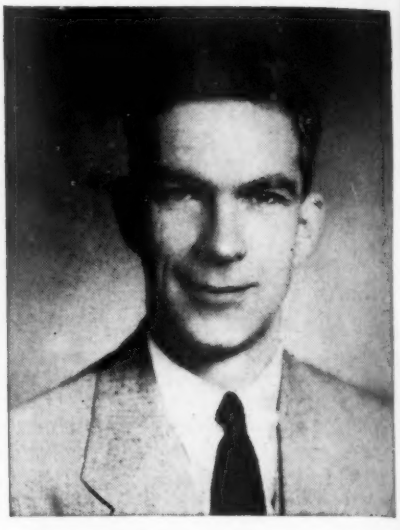
Sales Tips from Industrial Purchasing Agents



"A salesman is more than an ambassador of good will. He can be a valuable source of information, not only on his own products, but on economic trends and market conditions both in his own field and in other industries he comes in contact with. A capable salesman will also sell his management on the merits and potentialities of his customers, and use his influence to help them in times of need," says G. T. Zahnke, Purchasing Agent, Wallace Barnes Co., Division of Associated Spring Corporation, Bristol, Conn.



"We give every salesman a hearing, but we prefer that they know why they are calling on us, rather than just 'dropping in.' We expect salesmen to know our needs, and to have a clear idea of how their products fit into our requirements. To help them, we maintain in our anteroom a complete file of all our promotion and catalog literature, so that they may select pieces for study, or to take back to their own company for analysis," says Fred W. Frohn, Purchasing Agent, The Bristol Company, Waterbury, Conn.



"Most industrial sales dollars come from old customers. Keeping customers sold should, therefore, be a principal objective of salesmen. Those who are keeping their existing customers sold recognize that real salesmanship covers a lot of ground. It comprises everything that contributes to the salability of the product, from the time the idea for it is conceived, right up to the time it is used up. Sell the steak, not the sizzle!," says J. D. Hogg, Purchasing Agent, Cleveland Electric Illuminating Company, Cleveland, Ohio.

41,000* readers of PURCHASING want buying facts.

To do their job, industry's PA's must buy the right products, in the right quantities, at the right time and at the right price. The facts about your products and services – your selling facts – are their *buying* facts.

It's sound advertising, just as it's sound selling, to get your product story to the men who do industry's buying. Make sure your advertising reaches them! Use PURCHASING . . . the one national magazine edited to serve the needs of industrial PA's . . . the one magazine they read regularly . . . *the basic magazine on any industrial advertising schedule!* PURCHASING, 205 East 42nd Street, New York 17, N. Y. Offices in Chicago, Cleveland, Dallas, Atlanta, Los Angeles.

* Based on survey, copy on request.

When you think of selling...think of PURCHASING

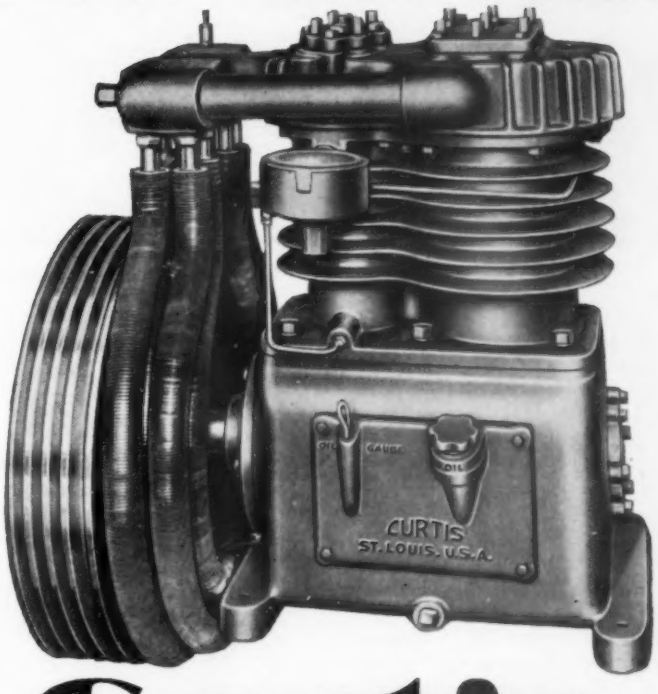
ABC NBP

PURCHASING
A CONOVER-MAST PUBLICATION

The basic magazine on any industrial advertising schedule!

MORE AIR Per Horse Power

- IT'S TWO-STAGE
- IT'S AIR COOLED
- SELF OILING



The New Curtis

MODEL 98 AIR COMPRESSOR

TWO-STAGE AIR COOLED 15 AND 20 HORSEPOWER

TWO-STAGE — More air per kilowatt hour, assuring savings in power bill.

AIR-COOLED — No expensive water bills; eliminates plumbing installation costs.

INTERCOOLER — Four section, finned, providing unusually effective cooling between stages; cooled by cyclone of air from fan flywheel.

SELF OILING — Simple, positive centro ring method; provides pressure lubrication of connecting rod and pistion pin bearings.

TWO TIMKEN MAIN BEARINGS — Tapered rollers; provide easy adjustment made externally without dismantling compressor.

VALVES — Readily removable as assembled units without removing cylinder head or breaking pipe connections or gasket joint.

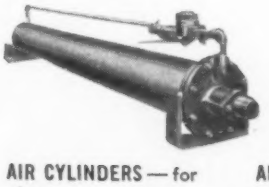
CRANKSHAFT — Counterbalanced, drop forged — two main bearings — no overhung bearing.

PRECISION WORKMANSHIP — Assures long life and minimum maintenance.

EXPERIENCE — Backed by 99 years of manufacturing — assures you dependable, troublefree service.

Available as a simple compressor or base mounted — motor driven.

LET ONE MAN DO THE WORK
with this Curtis air-operated equipment.





AIR CYLINDERS — for almost any pushing, pulling or hoisting operation.

AIR HOISTS — for low-cost lifting or lowering of materials or machines.

-726

CURTIS PNEUMATIC MACHINERY DIVISION
of Curtis Manufacturing Co.
1908 Kienlen Avenue, St. Louis 20, Mo.

I am interested in items checked below:

☐ THE NEW MODEL 98 ☐ AIR HOISTS ☐ AIR CYLINDERS
☐ AIR COMPRESSOR

Name.....
Firm.....
Street.....
City..... .....Zone....State.....

CURTIS PNEUMATIC MACHINERY DIVISION of Curtis Manufacturing Company
1908 KIENLEN AVENUE ST. LOUIS 20, MO.



NIGP official luncheons were held in the Marine Dining room of the Edgewater Beach Hotel.

More value for tax dollar

NIGP Holds Seventh Annual in Chicago

"The public is getting more value for the tax dollar due to the planning and collective effort of governmental purchasing agents," declared President Carl Riggs of the National Institute of Governmental Purchasing, in welcoming delegates to the Seventh Annual Conference and Products Exhibit of that body at the Edgewater Beach Hotel, Chicago, October 19-22. "We have increased our usefulness and our value to the taxpayers because of our association with the people we have met at these meetings, and the group effort represented by the constructive programs and discussions. The N.I.G.P. is now firmly established, and it will become greater and better as the years go by." Concluding his talk he said that anyone from the industrial field entering the governmental field "will find that he has much to learn."

Mr. Riggs, who is director of purchases for the State of West Virginia, Charleston, W. Va., was reelected president of the Institute. Leo Weil, commissioner of purchases and supplies, Cleveland, Ohio, was reelected a vice president, and C. L. Magnuson, supervisor of purchases, State of Connecticut, Hartford, was elected a vice president. John W. Huffman, city purchasing agent, Richmond, Va., was reelected treasurer.

Four members were elected to the board of directors, namely, John F. Ward, city purchasing agent, Chicago; Michael Donohue, purchasing agent, Allegheny County, Pittsburgh (both reelected); John Splain, commissioner of purchases



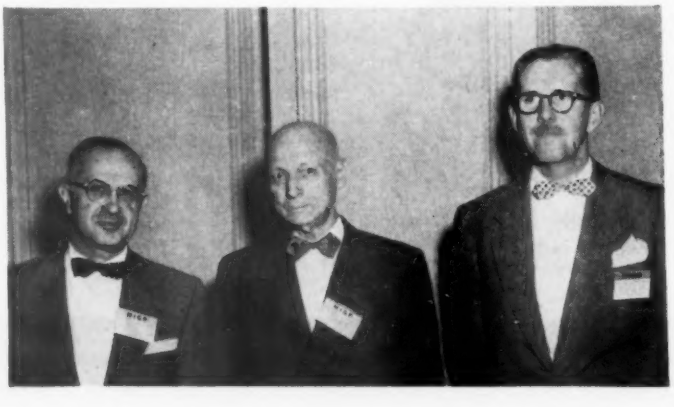
Albert H. Hall, Executive Director, NIGP.

of the City of New York, and C. A. Cross, city purchasing agent, Houston, Texas. Albert H. Hall, 730 Jackson Place, N. W., Washington, D.C., is executive director of the Institute.

The members voted to hold the 1953 meeting in Cincinnati. New York City will be the locale of the 1954 Conference and Products Exhibit.

Appropos of the remarks by Mr. Riggs in welcoming the delegates to the meeting, Wm. J. Burke of Corpus Christi, Tex., later commenting on the Chicago conference said: "This is the best meeting yet. I have attended several meetings, the first one in New York City in 1947. The meetings have grown in importance and value to the participants. These meetings give the representatives of small communities the opportunity to get ideas about the methods and practices followed in the larger cities that may be adapted to their own operations to promote efficiency and economy. The open forum meetings have been a benefit to all of us."

Also, Luis D. Marin, Director, N. Y. Procurement Office, Government of Puerto Rico, commenting on the program and discussions, said: "We are getting the views of scores of people and we are applying the information that we gather at these



Vice President Leon Weil, President Carl W. Riggs and Vice President C. L. Magnuson.

HERE'S HOW TO BEAT THE HIGH COST OF MOVING MATERIALS!

For maximum materials handling economy, standardize on Gould "Thirty" Batteries for your electric industrial trucks . . . and systemize battery maintenance with the Gould Plus-Performance Plan described at the left. Here's a sure-fire, cost-cutting combination. Write for full information on Gould "Thirty" Batteries and the Gould Plus-Performance Plan.



THE GOULD PLUS-PERFORMANCE PLAN—A library of technical information that tells you how to select, charge, maintain and determine the condition of lead-acid batteries. It's free. Write Gould Battery Information Headquarters.

The Gould "Thirty"—
America's Finest
Industrial Truck Battery

GOULD *Industrial Batteries*

GOULD-NATIONAL BATTERIES, INC., TRENTON 7, N. J.

Always Use Gould-National Automobile and Truck Batteries



Mayor John E. Macwherter of Springfield, Ill., is considering centralized purchasing for that city.

meetings to our own operations in Puerto Rico and in New York City. The association has made remarkable progress and we feel that this Chicago meeting has been the most practical and beneficial thus far."

The Chicago program was well diversified. It included discussions on excise taxes on automotive parts, purchasing forms and systems, cash discount procedures, accounting and vouchering, standardization, salvage, commodity catalogs, specifications, stores control, and miscellaneous purchasing problems. Following the speakers, time was allotted for a questions-and-answers period, and one day's sessions were largely given over to a round table discussion of public purchasing problems, with Jos. W. Nicholson, City Purchasing Agent, Milwaukee, as chairman. Brought into the general discussion were such subjects as used-automobile sales, lubricants, standardization, specification-buying, tires, printing, fire equipment, salvage, handling bids, fuel and other materials, equipment and supplies.

Commenting on the benefits of central purchasing operations, John F. Ward of Chicago stated that it has been estimated that centralized purchasing makes for savings of 10% to 15%, and that "Chicago claims savings of five to six percent." Another speaker representing a city of 100,000, where purchases approximate $850,000 annually, estimated savings at $50,000 to $75,000 a year, plus important intangible benefits such as better service, better quality and improved vendor relations. This speaker placed the cost of operating his department at $18,000 a year.

Several purchasing agents reported that they were effecting substantial savings in printing costs by the operation of their own reproduction and printing departments, one stating that as compared with commercial printing costs the savings were approximately 50%. Another speaker



Mayor Kennelly of Chicago presents City Purchasing Agent John Ward with the N.IGP Distinguished Service Award.

stated that used fire-hose was graded and sold, a great deal of it being bought by farmers for use in irrigation work. He said that after seven years' use, he was getting about 50% of the original price



J. E. Schaefer, V.P. & G.M., Wichita Divn., Boeing Airplane Co., principal speaker at the Tuesday luncheon meeting.

paid for the hose. There was considerable discussion about the disposal of used automotive equipment. A western purchasing agent said that used-car dealer prices are much better than the trade-in allowances. His department also holds auctions on used cars, reserving the right to make or not to make a sale. "We have found," he said, "that in public auctions we make about 50% more than the used-car dealer quotations, and much more than trade-in quotations." Another speaker stated that it is his legal responsibility to dispose of old automotive equipment at public auction. The purchasing agent of a large eastern city stated that better prices were being received for cars sold separately than trade-in allowances would bring.

In like manner, practical and informative ideas were elicited on methods and policies at the breakfast meetings held by State purchasing agents, educational buyers, and city, county, special authorities and districts serving populations up to 150,000 and a similar group serving populations over 150,000.

These young ladies handled the multitudinous details that go with registering and issuing badges, luncheon tickets, etc., to more than a thousand registrants. Julia V. Rozwood of the NIGP office at Washington, heads the group.



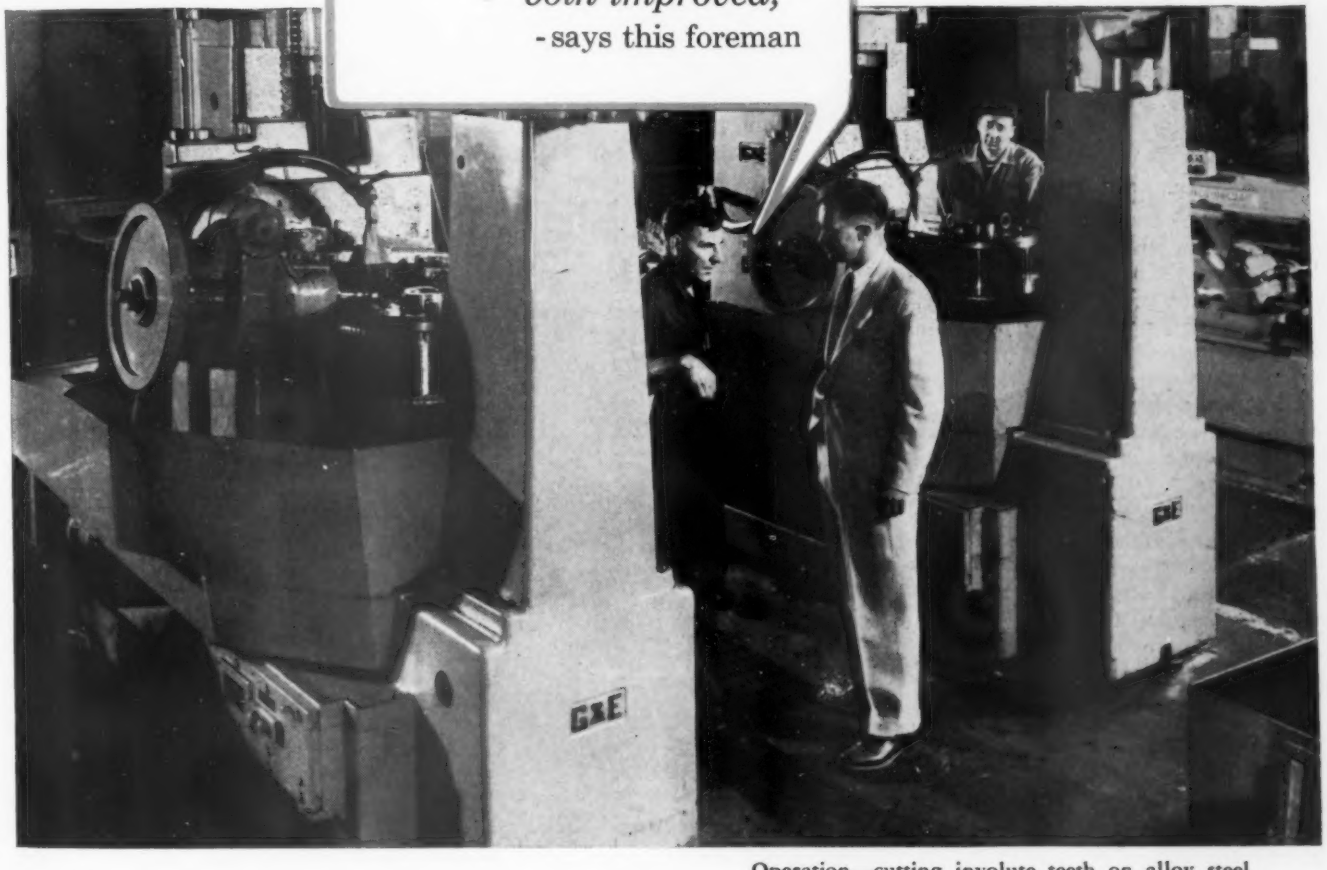
T. J. Jones, Chief Officer of Supplies London (Eng.) County Council, Clifton E. Mack, Com. of Federal Supply, G.S.A. Washington, Martin Marques, Dir., G.S.O., San Juan, and Luis D. Marin, Dir., N. Y. Procurement Office, Government of Puerto Rico.



alloy steel drive gears for M-47 tank

hob better with GULF ELECTRO CUTTING OIL!

"Hob life and tooth finish both improved," - says this foreman



Operation—cutting involute teeth on alloy steel spur gears, Gould and Eberhardt Gear Hobbers; results with Gulf Electro Cutting Oil—Hob life increased 20%, scuff marks eliminated on gear teeth, and hob grinding costs reduced.

Here's the important reason why Gulf Electro Cutting Oil produces outstanding results like these: Thanks to a special Gulf process of combining sulphur, it provides greater sulphur activity over the entire range of a cutting operation. This means longer tool life and better finishes.

Call in a Gulf Sales Engineer today and arrange to use this quality cutting oil on your tough machining operations, or send the coupon below for additional information.

GULF SERVES INDUSTRY

Gulf Oil Corporation · Gulf Refining Company P
719 Gulf Building, Pittsburgh 30, Pa.

Please send me, without obligation, a copy of your pamphlet "Gulf Electro Cutting Oil."

Name.....

Company.....

Title.....

Address.....



Mrs. and Mr. E. Earl Udall, P. A., Phoenix, Ariz., and the youngest potential P. A. at the conference.

The Chicago conference was called to order the morning of October 20th, with President Riggs presiding. Following his annual report, and the report of Treasurer John W. Huffman, Alvin J. Holm, chairman of the NIGP Committee on Federal Excise Taxes on Automotive Parts, reported on the activities and findings of that committee.

"The greatest accomplishment of our committee during the past year," he said, "was the revelation that government agencies throughout the country have been paying a Federal Excise Tax on many products, without knowing it, because the tax is included in the prices on the price lists which are used in making quotations to us.

"This practice of hiding the tax in the price list was first discovered in the Automotive Repair and Replacement Parts Group. The Federal Manufacturers Excise Tax on these products is 8% of the manufacturers' selling price.

"To better understand the wide range of items included in this group, the following partial list is given: Batteries, spark plugs, carburetors and parts, clutches and parts, transmissions and parts, bearings, generators, starters, distributors, switches and other electrical items, pistons and all engine parts, etc. The tax is applicable only where the item is used exclusively on automotive equipment.

"If the parts are purchased directly from the manufacturer the tax rate is 8%. If the parts pass through several middlemen, the percentage on the selling price of the last dealer to handle the parts may drop to three percent or even two-and-one-half percent.

"It is our belief that in all instances where purchases are made directly from the manufacturer, the tax exemption is being granted, and also that most manufacturers are making arrangements to adjust their prices where the purchases are being made from dealers. Some are giving a flat discount that applies straight across-the-board on all items, while others are giving an extra discount only on the prices of those items where the tax is applicable. Two of the largest automobile manufacturers have refused to recognize our exemption privileges on parts purchased from their dealers."

Mr. Holm stated that in Los Angeles these taxes "mean $25,000 a year." He quoted a legal authority to the effect that a chapter of the Internal Revenue Code entitled "Manufacturer's Excise Taxes, General Administrative Provisions" provides in part: "Under regulations prescribed by the Commissioner with the approval of the Secretary, no tax under this chapter shall be imposed with respect to the sale of any article—*** (3) for the exclusive use of the United States,



John Ward, Jr.

any State, Territory of the United States, or any political subdivision of the foregoing, or the District of Columbia". He said it was obvious that it is the intent that sales for



James S. Knowlson, Stewart-Warner Corp., addressed the Monday luncheon on "A Business Man Looks at Public Purchasing."

the exclusive use of governmental units are to be tax free. This authority also called attention to the fact that Section 3443 of the Internal Revenue Code entitled "Credits and Refunds" sets up the authorization for refunding to manufacturers taxes paid on articles sold to governmental agencies, expressing the opinion that it seems apparent that the clear intent of the Congress in passing Section 3443 of the Internal Revenue Code was to make it mandatory that sales to municipalities would be tax-free.

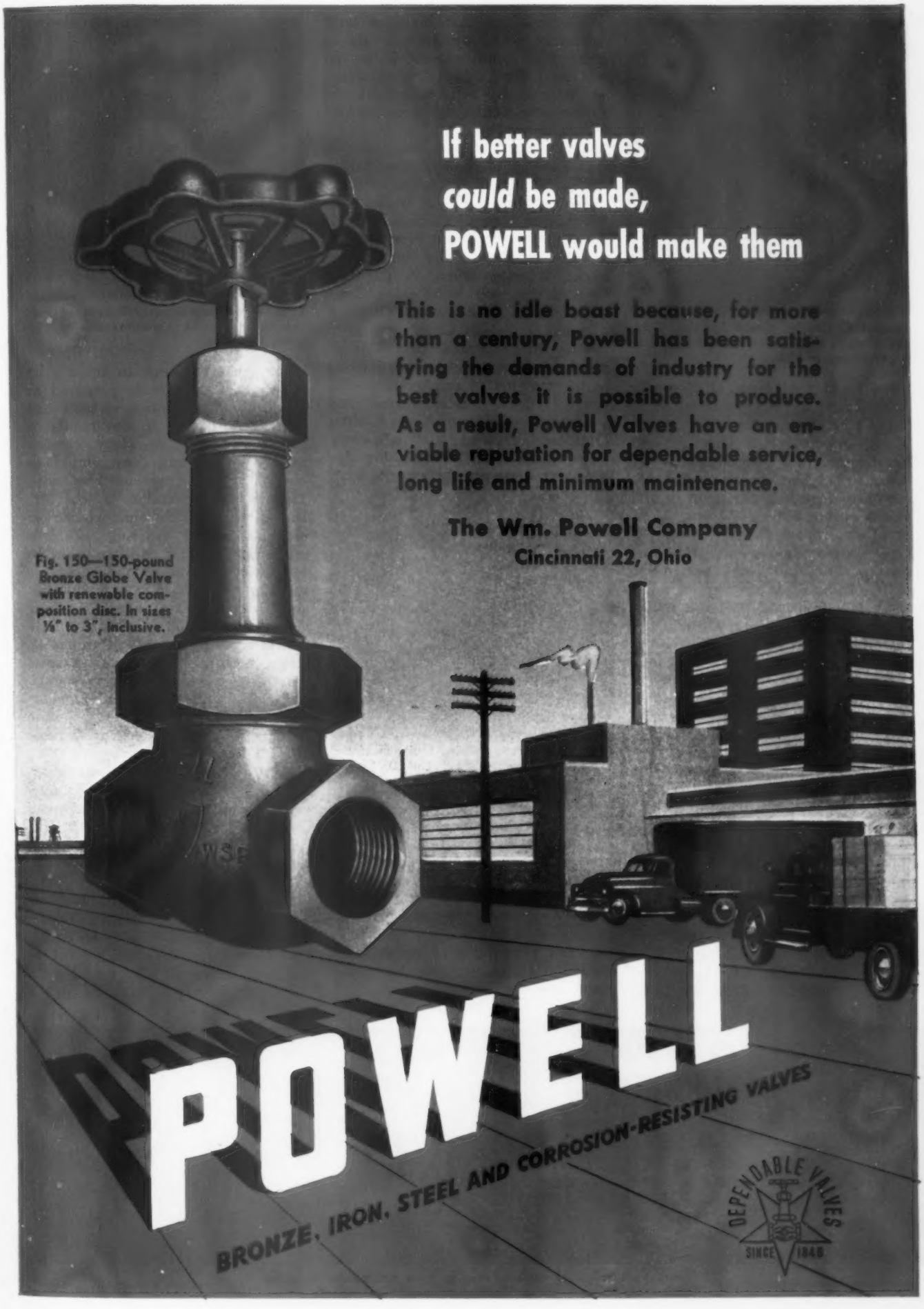
Mr. Holm stated, "We feel we have something substantial to stand on the next time we go to the Bureau of Internal Revenue, and we hope we will be able to send out news that the granting of the exemption is mandatory."

In the discussion that followed it was brought out that in some instances allowances up to 6% were being made by certain sales branches and by dealers, and that in many instances dealers do not know about the Federal excise tax on automotive parts; some agencies are getting discounts and some are not.

The official luncheon on Monday was featured by an address of wel-

N. B. Henson, Hartford, Conn., Jos. W. Nicholson of Milwaukee, and Alvin J. Holm of Los Angeles "at the mike" during the Problem Clinic.




If better valves
could be made,
POWELL would make them
This is no idle boast because, for more than a century, Powell has been satisfying the demands of industry for the best valves it is possible to produce. As a result, Powell Valves have an enviable reputation for dependable service, long life and minimum maintenance.
The Wm. Powell Company
Cincinnati 22, Ohio
Fig. 150—150-pound Bronze Globe Valve with renewable composition disc. In sizes ⅛" to 3", inclusive.
POWELL
BRONZE, IRON, STEEL AND CORROSION-RESISTING VALVES
DEPENDABLE VALVES
SINCE 1846



Thomas C. Charles, Grand Junction, Colo., and Hans P. Nelson, Davenport, Ia., analyze a purchasing problem.

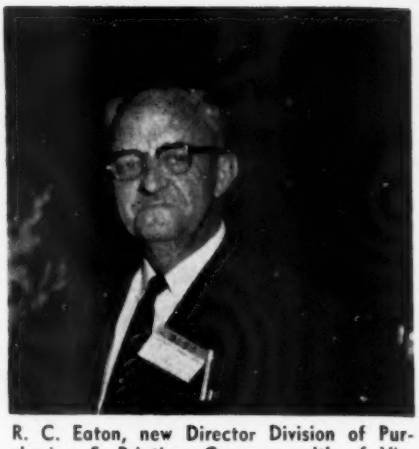
come by Mayor Martin H. Kennelly of Chicago, and his presentation to City Purchasing Agent John F. Ward, of the NIGP Distinguished Service Award. Featured speaker at the meeting was James S. Knowlson, president and chairman of the Board of the Stewart-Warner Corporation, whose subject was "A Business Man Looks at Public Purchasing." Mr. Knowlson is a member of the Illinois advisory commission on state purchasing. He stated that the cost of materials in industry represents about 40% of the cost of manufacture, and that the purchasing functions are carried on by a group that is very small compared with the organizations for sales and other company activities. Commenting upon the importance of the procurement function he said, "I do not know whether you receive the recognition that is due you but whatever recognition you do receive is well earned, and your services are appreciated by an ever growing number of people." Commenting upon the red tape of public buying, which he said was "all wrong", he stated "I understand that you represent five to seven billions of dollars in purchasing. We in the industrial world cannot ignore that. We cannot get that business until we learn what we have to do to meet your requirements. If we do not learn how to get this business, we will simply turn it over to the fellow who knows the routines and the requirements."

The Monday afternoon session was devoted to the following talks: "Preparation and Utilization of Purchasing Forms", Wm. J. Burke, city purchasing agent, Corpus Christi, Texas; "Cash Discount Procedures", A. C. Shepherd, city purchasing agent, Winston-Salem, N. C.; and, "Accounting and Vouchering Controls", by R. T. Anderson, Director of Finance, Toledo, Ohio.

Mr. Burke stated that though purchasing men may be meticulous in the training of employees in the use of departmental forms and equipment, the use of forms is often tolerated which do not efficiently meet requirements. Purchasing department forms, he said, should give the most complete information, in the smallest amount of space, covering all details of the purchasing transaction. The organization of information on the requisition is extremely important, for improper organization or sequency of information can contribute to errors, lost motion and time, and possibly monetary loss.



J. H. Askern, Pure Oil Co., chairman of the Exhibitors Committee, and Earl D. Studer, Kaiser Frazer Company.



R. C. Eaton, new Director Division of Purchasing & Printing, Commonwealth of Virginia, Richmond.

"It must be kept in mind", he continued, "that forms prepared in the purchasing office, which are eventually placed in the hands of vendors, should be clear, concise and complete, and they should as our personal representatives create a good impression of us." Mr. Burke stressed the importance of eliminating or revising obsolete forms. However, it is often possible to obviate forms-obsolescence, he said, by providing a form of suitable size with blank spaces or lines which can be used temporarily until a final form is approved. Purchasing forms are important working tools, he stated, and due attention should be given to the matter of keeping forms current and of proper design to expedite the purchasing procedure.

The Tuesday session brought a number of interesting talks. Among these were "Standardizing Common Use Items", by Wm. H. Butler, III, County Purchasing Agent, Essex County, Newark, N. J.; "Salvage", by Richard B. Berry, Deputy City Purchasing Agent, Chicago; "Market Analysis", by A. L. McMillan, Director of Purchases, City of New York; a talk on "Air Superiority—Not a Grocery Store Item" by J. E.

(*Please turn to page 222*)



There were scores of exhibits, ranging from automobiles to office equipment, uniforms and duplicating equipment, to indicate a few.



Easy to Order! . . .

. . . Quick and Easy to Install!



Grinnell Welding Fittings

Any qualified welder can make welds quickly and easily with Grinnell welding fittings. These fittings are made by a hydraulic forging process that assures uniform wall thickness at all points and true circularity throughout. Of seamless, one-piece construction, they can be cut at any angle to match up with standard weight, extra strong and heavier wall pipe in I.D. or O.D. sizes. Pressure-temperature ratings are equal to or greater than those of seamless steel pipe. Grinnell welding fittings are process stress-relieved.

Full data on the complete line of Grinnell seamless carbon steel welding fittings and forged steel flanges is contained in the Grinnell Welding Fittings catalog. Send for a copy.

GRINNELL
WHENEVER PIPING IS INVOLVED

RANGE OF TYPES AND SIZES

Description	Standard Weight	Extra Strong	Schedule 160	Double Extra Strong	Light Gauge Nominal Pipe Size	Light Gauge Iron Pipe Size
ELBOWS 90° Long Radius	½"-30"	½"-30"	1"-12"	¾"-8"	4"-24"	¾"-12"
90° Long Tangent	1½"-12"	1½"-12"	.....	.....	.....	.....
90° Reducing	2"x¾" to 6"x5"		.....	.....	.....	.....
90° Short Radius	1"-30"	1½"-30"	.....	.....	.....	.....
45° Long Radius	½"-30"	¾"-30"	1"-12"	¾"-8"	4"-24"	¾"-12"
RETURNS 180° Long Radius	½"-30"	½"-30"	1"-12"	2"-8"	4"-24"	¾"-12"
180° Short Radius	1"-30"	1½"-30"	.....	.....	.....	.....
180° Ex. Long Radius	1"-2½"	1"-2½"	.....	.....	.....	.....
TEES — Straight	½"-24"	½"-24"	½"-12"	½"-8"	.....	.....
Reducing Outlet	½"-24"	½"-24"	¾"-12"	¾"-8"	.....	.....
REDUCERS Concentric & Eccentric	¾"-24"	¾"-24"	¾"-12"	¾"-8"	.....	.....
CAPS	¾"-24"	¾"-24"	1"-12"	1"-8"	.....	.....
STUB ENDS — Lap Joint	½"-24"	½"-24"				
SADDLES	2"-24"					
LATERALS — Straight	1¼"-24"	1¼"-24"				
Reducing	1¼"-24"	1¼"-24"				
CROSSES — Straight	1¼"-24"	1¼"-24"				
Reducing	1¼"-24"	1¼"-24"				
BACKING RINGS	2"-24"	2"-24"				

Also available in certain sizes are: 90° long and short radius elbows, 45° long radius elbows and 180° long and short radius returns in Schedules 30, 40, 60 and 80.

Grinnell welding fittings and flanges conform to applicable ASA and ASTM Standards.

GRINNELL WELDING FITTINGS ARE QUALITY-CONTROLLED FOR DEPENDABILITY



TRUE CIRCULAR SECTION

True circular section at all points makes a Grinnell fitting easy to align and weld . . . there is no distortion or no flattening to affect flow adversely.



FULL EFFECTIVE RADIUS

The loss of pressure through Grinnell welding elbows is held down to an absolute minimum . . . because of the full and the effective sweep of the radius.



SMOOTH, CLEAN INSIDE SURFACE

Grinnell Fittings have uniformly smooth inner walls . . . no waves or ridges to cause turbulence or accelerate erosion or corrosion. No pockets to trap solids.



EASY, SWEEPING TURNS

In Grinnell welding tees, corners where outlet joins the run are well-rounded and perfectly smooth to minimize resistance to flow and to prevent trapping.

Grinnell Company, Inc., Providence, Rhode Island • Coast-to-Coast Network of Branch Warehouses and Distributors

pipe and tube fittings • welding fittings • engineered pipe hangers and supports • Thermolier unit heaters • valves
Grinnell-Saunders diaphragm valves • pipe • prefabricated piping • plumbing and heating specialties • water works supplies
industrial supplies • Grinnell automatic sprinkler fire protection systems • Amco air conditioning systems

Cleveland Scene of Annual Sixth District Purchasing Conference

More than three hundred members of associations in District 6, National Association of Purchasing Agents, attended the district conference held in Cleveland on October 10 and 11. Represented at the sixth annual affair were the following associations: Akron, Canton, Cincinnati, Cleveland, Columbus, Dayton, Erie, New Castle, Northwestern Pennsylvania, North Central Ohio, Pittsburgh, Springfield, Toledo, Youngstown and Tri-State. G. N. Hackett of Cleveland was general chairman of the conference.



Cleveland's President W. D. Kimmell extends greetings.

Session chairman H. L. Williams, president of the Dayton Association, presided at the first portion of the meeting on October 10. Following the invocation by Dr. Whyte of the Old Stone Church, W. D. Kimmell, president of the Cleveland Association, greeted the guests.

"What can you tell a young man who wants to be a purchasing agent?" asked Mr. Kimmell. "He must be a forecaster, a labor relations man, a public relations man, an engineer, an authority on transportation and a law expert to keep up with the new developments in the procurement function." He declared that purchasing is now recognized as a big and important job, one with growing horizons. "This is a time of opportunity" for purchasing men, Mr. Kimmell said.

George H. Porter, III, Vice President for District 6, spoke next on the history of the National Association of Purchasing Agents. He outlined the "long pull" the national had to reach its present degree of eminence among business and professional groups. "We are reaping the harvest", Mr. Porter declared, "of a lot of hard work by our predecessors in the national."

Using large charts as illustrative material, A. O. Anderson of the Aluminum Company of America, gave an interesting talk on "Purchasing's Part in a Lubricant Program," outlining a six-step program for obtaining better results from lubricants at lower cost.

R. P. Snow, The Cleveland Electric Illuminating Company, spoke on "Measures of Performance for Purchasing." Mr. Snow's address is printed on page 98 of this issue of PURCHASING.

The luncheon session, held in the Rainbow Room of the Carter Hotel, featured a talk on "Jet Propulsion" by Willson H. Hunter, NACA-Lewis Flight Propulsion Laboratory, Cleveland. F. J. Baldauf, Johnson Bronze Co., president of the New Castle Association, was chairman of the session.

Friday afternoon, Carl A. Glass, Perfection Steel Body Co., president of the North Central Ohio Association, introduced first H. W. Christensen, president of the National Association of Purchasing Agents.

Mr. Christensen's stimulating, authoritative talk was followed by the showing of the film, "Industrial Purchasing."



H. L. Williams, Dayton, presides at first session.

The film was introduced by Paul V. Farrell, associate editor of PURCHASING, who described how it came to be produced and its general purpose.

(*Please turn to page* 204)



N.A.P.A. President Christensen with Tom Hudson, C. H. Baringer, and Wm. C. Mahan.



Heavy attendance keeps the registration desk busy.



The toughest three-letter word in business

"But . . ."

The word a man uses when he starts by nodding yes and ends by saying no.

"But . . ."

The word on a Multiwall buyer's tongue just after he's said, "Well, as long as we order by specification, I guess one brand's as good as another . . ."

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They testify* that there are many other considerations. Among the most important, the reputation of the manufacturer. They judge him by his record of reliability, his effort to meet delivery dates, his willingness to give a full measure of service.

We welcome the challenge of the toughest three-letter word in business. We believe the attention big buyers of Multiwalls pay to the *extra* factors—dependability, for instance—has a lot to do with their giving Union a greater proportion of their Multiwall business.

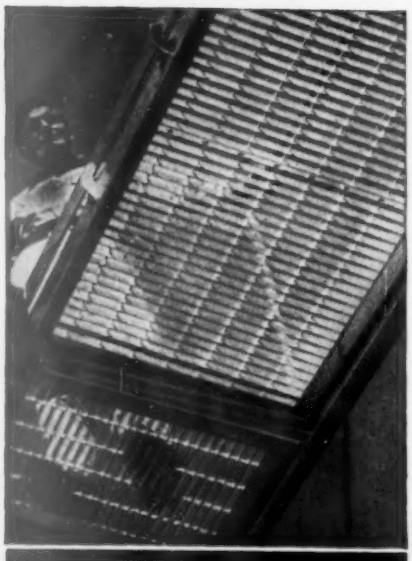
More so every day . . .

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*August, 1951 research study.

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(*Continued from page 202*)

Addresses by T. A. Corcoran of the Courier-Journal and The Louisville Times, and Paul R. Anders, Dean of Business Administration, Fenn College, closed Friday's program. Mr. Corcoran spoke on "Education—A Continuing Project", and Dean Anders on "Purchasing from the Viewpoint of a Dean of Business Administration College".

An excellent entertainment program highlighted the dinner session on Friday evening. A reception was held prior to dinner in the Embassy Room of the Carter. Mr. Hackett was chairman of the dinner session.



Session chairman Norm Early in action.

Saturday, October 11, saw the final session of the conference, with Norman Early, president of the Toledo Association, as chairman.

First speaker was Bruce D. Henderson, Westinghouse Electric Corporation on "The Selection and Training of Purchasing Personnel." Mr. Henderson's talk is scheduled to appear in a later issue of PURCHASING.



T. R. Zenk and Elmer Schaefer of Pittsburgh find S.R.O. at "Industrial Purchasing" showing.

James M. Dawson, National City Bank, Cleveland, spoke next on "A Crystal Ball for Purchasing Agents." He was followed by C. Warner McVicar, Rockwell Manufacturing Company. Mr. McVicar's talk, "Techniques of Interviewing Salesmen", appears on page 111 of this issue of PURCHASING.



George Drike and Bruce Henderson in a post-meeting discussion.

The conference closed with George Renard, executive secretary-treasurer of N.A.P.A., giving his sparkling "From One P.A. to Another."

ST. LOUIS ASSOCIATION PLANS PRODUCT SHOW

The Purchasing Agents Association of St. Louis is busy making arrangements for the "St. Louis Product Display Show" which will be held February 5 and 6 at the newly redecorated Jefferson Hotel. This "Display Show" will be held in conjunction with the Annual Executive Night meeting. Booths are being sold to all companies who wish to show products to purchasing agents and executives of their companies, as well as members of the Engineers Club of St. Louis and the Sales Managers Bureau, who will meet with the P.A's. during the show.

Professor Sam Marsh of University of Wisconsin was guest speaker at the St. Louis Purchasing Agent's Association meeting on November 25, at the Sheraton Hotel. Professor Marsh is well known among the St. Louis Association for his help, encouragement and leadership in starting classes in "Industrial Purchasing" at the Washington University in St. Louis. Professor Marsh gave a very interesting speech on "What Lies Ahead".

The association is anxiously looking forward to the gala Christmas Party which will be held at the Chase Hotel on December 13. Entertainment chairman R. E. Kreyling and his committee have promised to continue their outstanding work in presenting the "Best Party Ever".

NEWS COMMENTATOR GUEST OF CHICAGO ASSN.

A regular meeting of Purchasing Agents Association of Chicago was held on November 20 at the Hotel Sherman.

Clifton Utley, noted commentator was guest speaker and spoke on "Post-Election Outlook."

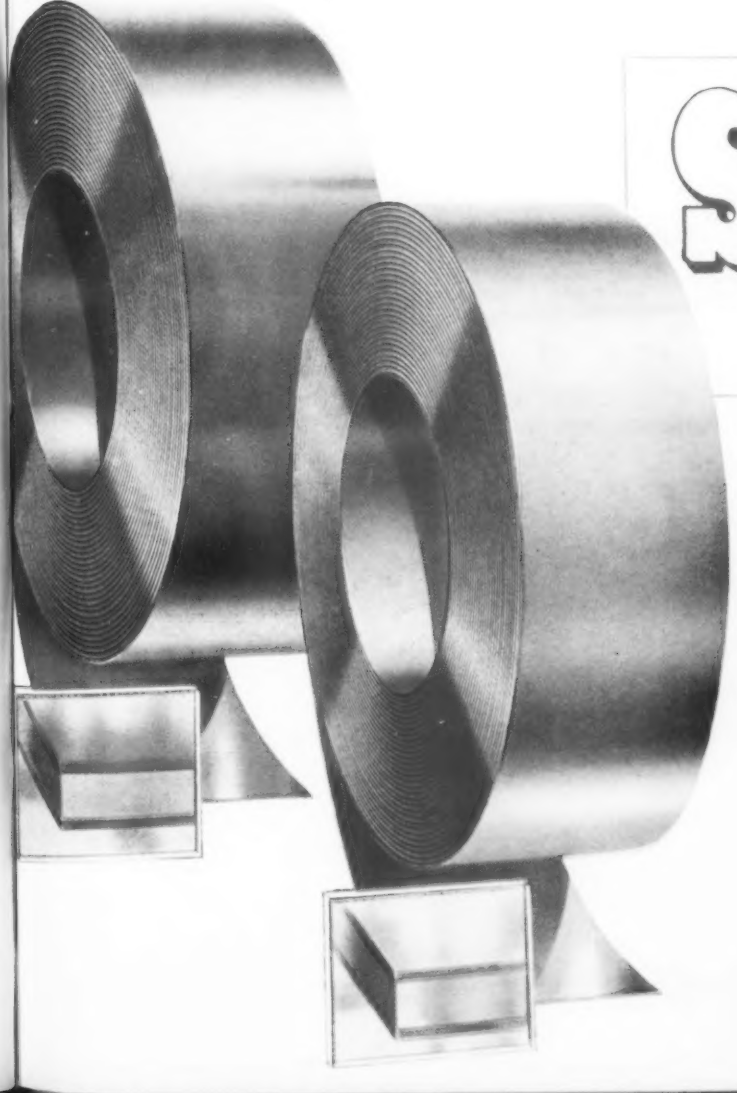


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District 7 Council in session preceding the Atlanta conference.

7th District Conference Draws Large Attendance

The Purchasing Agents Association of Georgia was host to the Ninth Annual Conference, Purchasing Agents of the Southeast, at the Atlanta Biltmore Hotel, October 20 and 21. Registration passed the 490 mark on the opening day—impressive evidence of the keen interest of District 7 purchasing men and the drawing power of a first rate program. The conference was preceded by a meeting of the District Council, under the leadership of Vice President W. S. Flinn, Chattanooga. At this meeting the application of the newly organized Tenneva Association was favorably received, bringing the number of member associations in the district up to eleven.

Keynote of the conference was set in an address on "The New South", by Harllee Branch, Jr., President of the Georgia Power Company, at the opening session on Monday morning. Mr. Branch ably summarized the wealth and variety of resources available in the southeastern states and the phenomenal recent growth of this region as a producing center as well as an important consumer area.

Nelson J. Gibbins of Lansing, Michigan, Chairman of the N.A.P.A. Committee on Public Relations, was the second speaker, stressing the importance and techniques of public relations work in purchasing at the individual member level.

Fred E. Lind, New Orleans, was moderator of a commodity discussion panel dealing with a half dozen fields of particular current importance in relation to industry in the southeast. He enlivened this feature by casting it in the form of a political convention, complete with banners, parades, hecklers, and frequent huddles to determine rules of order. Participating in the panel were: Chester Moates, Birmingham, on "Electrical Supplies"; C. L. Jack, Chattanooga, on "Containers"; James T. Goyer, Oak Ridge, Tenn., on "Construction"; J. O. Allen, Tampa, on "Steel"; J. K. Chambers, Bauxite, Ark., on "Aluminum"; and Marshall G. Edwards, Jackson, Miss., on "Asphalt Tile".

At the Monday afternoon session, District Vice President Flinn reported on the flourishing state of affairs in the District, drawing a dramatic contrast with the conditions existing only a few years ago, when N.A.P.A. was seriously considering withdrawing from the area due to a low ebb of interest. Much of the credit for this resurgence is due to the work of the District Activities Committee, which has stimulated and coordinated activities of the member associations throughout the district and sponsored the annual fall conferences. N.A.P.A. President H. W. Christensen, San Francisco, next addressed the meeting on the topic, "What Are We Actually?"

Charles W. Hayes of Emory University, District Educational Chairman, was in charge of an "Educational Hour". He presented two speakers: H. F. Jones, Wilmington, Del., Chairman of the National Committee on Education, spoke on "Opportunity Unlimited", telling how the materials and programs developed by this committee can aid the purchasing man to better performance and greater achievements on behalf of his company and profession. Gordon Siefkin, Dean of the School of Business Administration at Emory University, declared that business is "thin on the top side". Dean Siefkin declared that industry, eagerly seeking personnel of management calibre, too often makes the mistake of emphasizing security and benefits in its recruiting programs, rather than presenting the challenge of opportunity, for the qualified worker. The educational background for any profession must be based on a broad general training that enables a person to

(*Please turn to page 212*)



Among the conference speakers were: Dean Gordon Siefkin and P. A. Charles Hayes of Emory University; N.A.P.A. President H. W. Christensen; Stuart F. Heinritz of PURCHASING Magazine; and Nels Gibbins of Lansing.

All of the Carbon Dioxide *Fights Fire*

because of a special U-Packing you can place on a dime!





LEAKING valves were causing real trouble to this manufacturer of carbon dioxide portable fire extinguishers. His valve design was OK: a plunger-actuated poppet providing quick, full flow, opened by depressing the spindle (by means of a lever on the carrying handle) and returned to the closed position by a strong spring.

His trouble lay in his seals — a mechanical packing on the spindle and a poppet washer for the seat. Tests showed that they leaked, permitting the carbon dioxide to escape.

Sample packings with the valve assembly were sent to G&K–INTERNATIONAL for study. As a result of engineered research, synthetic rubber compounds were developed, impervious to carbon dioxide and capable of withstanding long periods of aging.

For the spindle, G&K–INTERNATIONAL engineers designed a special U-shaped packing, leak-proof and flexible to form a perfect mechanical seal between the stem and the packings recess.

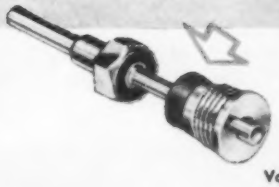
The poppet seat called for a hard, tough rubber, molded dead-even-flat on each face. It had to form a compression seal that would remain tight for years, if need be.

Results? To quote this manufacturer, "The valves passed Underwriters and U. S. Navy tests and are doing a wonderful job."

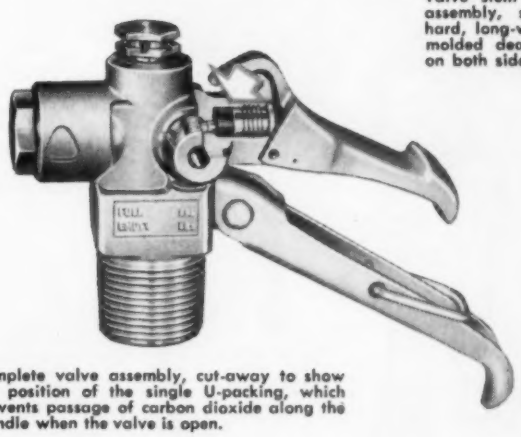
Be sure you get the correct type of packings made from compounds engineered for your requirements. Send us complete specifications of your packings needs and G&K–INTERNATIONAL Engineers will help you solve your packings problems — before trouble starts.



Photograph shows special U-type synthetic packing enlarged 3½ times. Assembly locates this packing on the spindle.



Valve stem and poppet assembly, showing the hard, long-wearing seat, molded dead-even level on both sides.



Complete valve assembly, cut-away to show the position of the single U-packing, which prevents passage of carbon dioxide along the spindle when the valve is open.

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"Jet Age Buying" District Two Conference Theme



Getting the inside story on bomber production are, l. to r., O. E. McClatchey, Tulsa; Fred D. Bradley and George C. Eason, Dallas, and A. J. Clark, New Orleans.

"Modernizing Purchasing Through the Jet Age" was the theme of the annual Southwest Purchasing Conference of Associations in District 2, held at Wichita, Kansas on October 1 and 2. The Wichita Association played host, with member William C. Adamek American Electric Company, as general chairman of the affair.

Other associations participating in the conference were those of Dallas, Fort Worth, Houston, Oklahoma City, Shreveport, Texas Panhandle, and Tulsa. Registration at the sixth annual meeting was more than 430.

One of the highlights of the conference was the visit by many of the purchasing men to the Boeing Airplane Company plant. During the tour, they saw the intricate operations of one of the Southwest's most spectacular industries. At Boeing, more than 52,000 separate pieces of equipment are assembled to make the B-47 Stratojet bomber, rated as the world's fastest plane of its type.

John M. Pierce of Wichita, Vice President of N.A.P.A. for District 2, set the tone that prevailed throughout the conference in his program introduction on Wednesday, October 1. "Purchasing agents", he said, "supposedly work with concrete certainties—men, money, materials and machinery. Today the thinking of men in high places is so erratic that we can no longer plan ahead. The ability to get material continually challenges purchasing agents. Money has financial men guessing. Machinery will produce, but it takes men and material to keep it working.

"The Southwest has moved forward so rapidly during the past 10 years that we believe the momentum will continue for many years. We put our faith in the people and the natural resources available."

The national was strongly represented at the conference by President H. W. Christensen and Secretary-Treasurer George A. Renard. Both Mr. Christensen and Mr. Renard gave characteristically informative and penetrating talks on present purchasing trends and problems.

"Freedom Is Your Job" was the title of an address by Tom Orr, Executive Secretary of the Kansas Independent Oil and Gas Association. Mr. Orr emphasized that trends toward socialism are accelerated by some people who have good intentions, but who refuse to pass up special benefits from the federal government although they demand that similar advantages be taken from other groups or individuals.

A. I. West, resident attorney for Cessna Aircraft Company of Wichita, conducted a panel discussion on the legal aspects of purchasing. This was followed by a discussion of the importance of purchasing education by Gerald Pearson, director of extension classes of the University of Kansas.

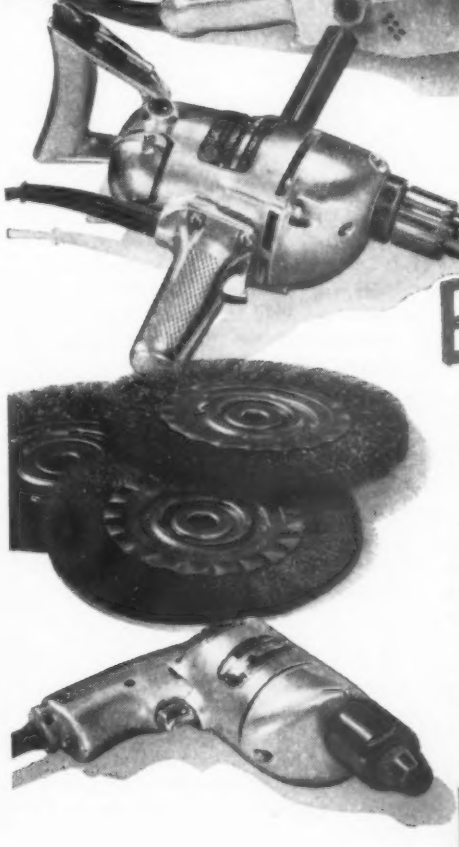
Norman W. Faust, of the technical and research division of The Texas Company, reported on research progress and new developments in the petroleum and petro-chemical industries.

Standardization and its significance to purchasing was thoroughly covered in



The District 2 Council. Front row, left to right: Gurney W. Dodd, Texas Panhandle Association; Karl Kennedy, Kansas Business Magazine; John M. Pierce, District Vice President; C. F. Wilson, and Ben R. Newbery, Lone Star Gas Co., Dallas; C. S. Worley, Purchaser's Digest; John Rieves, national director, Shreveport. Second row, left to right: H. M. Logan, president, Tulsa Association; Barron Chapman, Texas Panhandle; Roy W. Elliott, Wichita; E. P. Williams, Ft. Worth; Walter Bell, Ft. Worth; J. A. Stockton, Amarillo; Haylett Oneil, Jr., Houston; H. M. Cosgrove, Mid-Continent Purchaser; Karl E. Atteberry, Ft. Worth; E. J. Murray, Mid-Continent Purchaser; V. M. Lewis, Dowell Incorporated, Tulsa; H. A. Krampert, American Body & Trailer Co., Oklahoma City; R. E. Schmid, Dallas.





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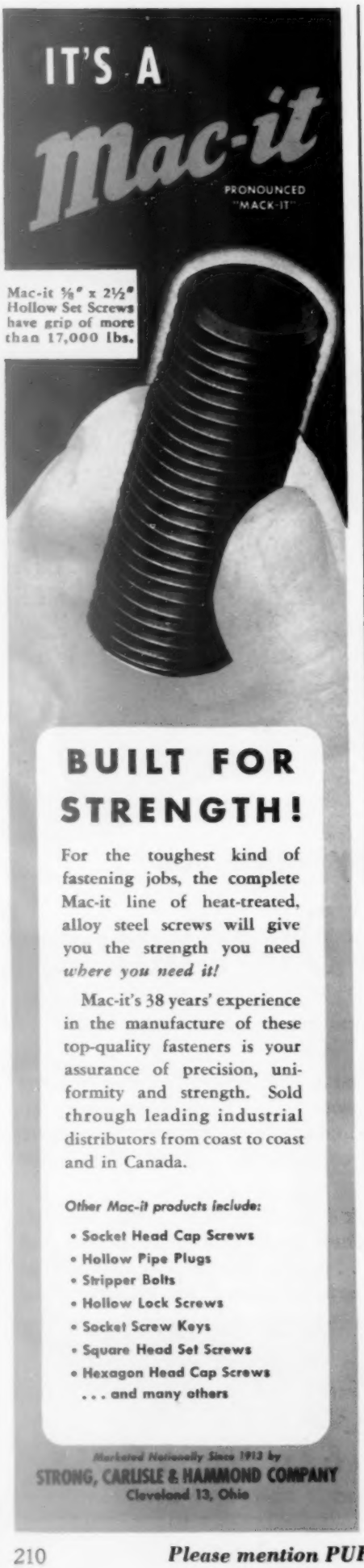
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(*Continued from page* 208)

an address by Thomas D. Jolly, vice president of the Aluminum Company of America, past president of the American Standards Association, and past president of the National Association of Purchasing Agents. Mr. Jolly pointed out how standardization can save money and materials and help us extend our dwindling supply of natural resources. Further, he declared, rising costs and higher break-even points make standardization of materials and equipment one of industry's few remaining areas for reducing operational expense and unit costs. Industrial inventories, now at an all-time high, he said, can be reduced through standardization of parts and materials.



Ben Newbery, former N.A.P.A., president, session chairman, and N. W. Faust, Texas Company.



Frank W. Woodrich, Dallas; J. D. Daigle, Houston; and W. H. Leimbrock, Wichita, inspect a B-17's tail asembly.

Other speakers at the first day's session were Harold Null, Null Investment Company, and H. C. Lumb, assistant general counsel for Republic Steel Corporation. Mr. Null declared that the federal government, through its overall policy and persistent interference with normal economic trends, is responsible for the level of high prices that exists today. Mr. Lumb discussed "Labor Monopoly vs. Free Enterprise."

Also featured was the showing of the sound color film "Industrial Purchasing."

Speaker at the Wednesday evening banquet was David L. MacFarlane, president of Kansas State Teachers College, Emporia, Kan. Dr. MacFarlane, presently of Scotland gave a humorous address that concluded with a serious warning to citizens of this country that they should cherish their heritage, and in every way possible protect its opportunities.

Tulsa was selected as the 1953 conference city. The invitation was extended by Virgil M. Lewis, national director of the Tulsa Association, at the District Council meeting held the day before the conference got under way. Also presented at the council meeting were reports by C. F. Wilson, Dallas, district chairman of the education committee; Walter L. Bell, Fort Worth, district chairman of the standardization committee, and H. M. Logan, Tulsa, district chairman of the public relations committee.

NEWS OF NIAGARA DISTRICT ASSOCIATION

Members of the Purchasing Agents Association of Niagara District have been "names in the news" recently. Among some of the more interesting developments in the group are the following:

Jack Wilson, who recently retired from the International Nickel Company, Port Colborne, was made the association's first honorary member at its last meeting. Mr. Wilson's record and reputation with his company is well expressed in the following tribute on his retirement which appeared in the house organ, "Inco Triangle":

"Jack Wilson's business sense, integrity, diligence and personality marked his as a "chiel o' pairts', and he took over one of the most responsible positions in the business world, that of purchasing agent. No one ever doing business with Inco ever found Jack Wilson too busy to listen to what they had to offer. In his retirement Inco has lost a facet that shone bright where honesty in all its phases was a principle to be steadfastly followed and where sharp practice was never countenanced or tolerated."

Member George Maybee, Packard Electric Company, St. Catharines, has been elected a member of the Packard board of directors. He is a member of the association's executive committee.

A. R. Draper, North American Cyanamid Limited, has been promoted to general purchasing agent for the company in Canada. Mr. Draper was general chairman for the association's "Business Associates Night" meeting held on November 13.

Lt. Colonel H. G. Morrow, general purchasing agent for McKinnon Industries Ltd., St. Catharines, addressed the Niagara Falls Kiwanis Club on October 31. His talk, entitled "How Your Mind Works", was very well received.



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No other welder has this Instantaneous Control feature. Foot-operated, the control provides the heat you call for instantly, *electrically* — not mechanically. No time lag. It's a P&H exclusive that boosts production, cuts costs, saves time.

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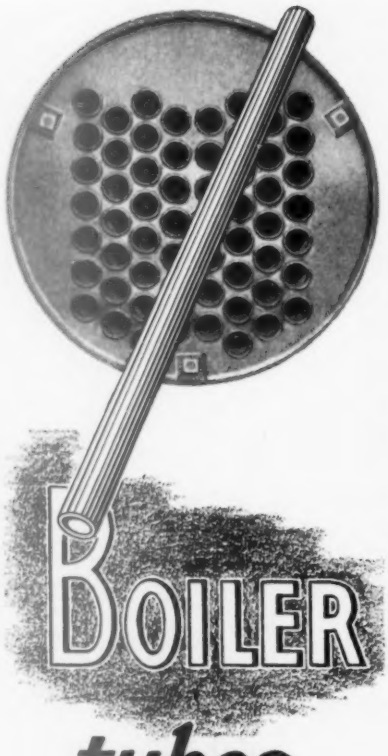
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ELIZABETH, N. J. McKEESPORT, PA.



Alabama was represented by a large, enthusiastic, and hospitable delegation.

7th District Conference

(*Continued from page* 206)

take miscellaneous facts, line them up in logical order, and draw conclusions from them. Purchasing, he said, should not be confined to the act of buying, but should bring to management the ability to analyze the economic climate in which business is done.

Paul B. Andrews, Director of the Copper Division, NPA, Washington, was the concluding speaker at this session, presenting an up-to-date summary of the supply/demand position in copper.

A cocktail hour and banquet, with entertainment, took place on Monday evening. C. L. Newton, President of the Georgia Association, presided, and J. E. Clark was master of ceremonies. Warren Foster of the Coca-Cola Company was the banquet speaker, posing as "Coach Bob Fumble" of the Siwash College football team.

Opening feature of the Tuesday morning session was the motion picture "Industrial Purchasing", introduced with a commentary by Stuart F. Heinritz of PURCHASING Magazine, New York. Harlan E. Cross, Birmingham, discussed standardization activities in District 7. John Sibley, Board Chairman, Trust Company of Georgia, spoke on "Resources and Development of the Southeast". George A. Renard, Executive Secretary of N.A.P.A., wrapped up the meeting with a keen analysis of business, economic, and governmental factors, which were particularly timely and significant on the eve of the national election.

Tuesday afternoon was devoted to plant visits and golf.

An excellent entertainment program was provided for the ladies at the conference, with the "Purcharettes of Georgia" in charge.

R. N. Patrick was General Chairman of the Conference Committee, and J. R. Carmichael arranged the program.

The 1953 conference will be held at Jackson, Mississippi.

✦ ✦ ✦

NEW ORLEANS ASSOCIATION ELECTS NEW MEMBERS

The Purchasing Agents Association of New Orleans elected the following new members at their October meeting: Mr. Roy Perrin, Purchasing Agent, Avondale Marine Ways, Inc.; Mr. Si Houlihan, Purchasing Agent, Ideal Cement Company; and Mr. E. J. Tuohy, Purchasing agent, Orleans Parish School Board.



A record attendance found the registration desk happy and well prepared.

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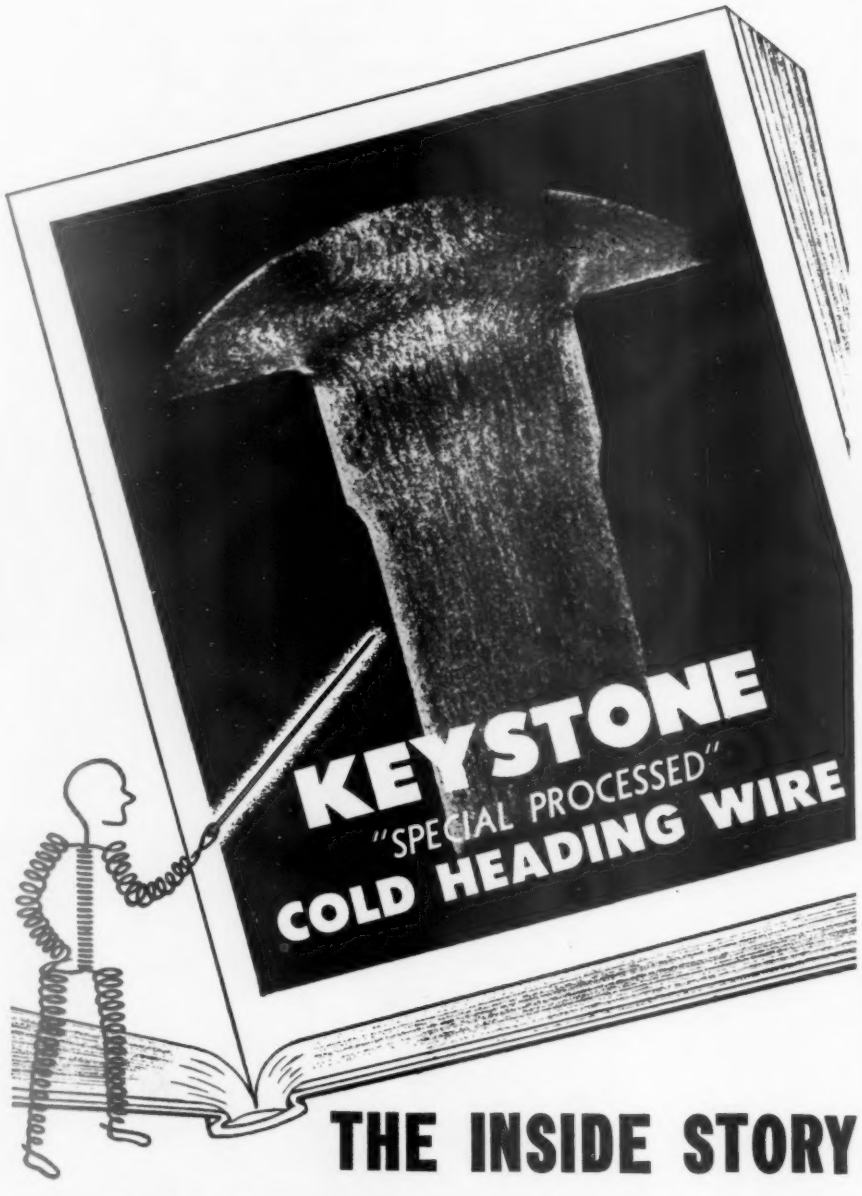
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- MECHANICAL AND PRESSURE TUBING

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THE INSIDE STORY

Long continuous fibers through shank and head are the "inside" proof of efficient cold-heading.

The above macrograph shows the uniform strength-giving, grain-flow characteristics in a bolt made from Keystone C1038 Special Processed Cold Heading Wire. Such uniform grain flow assures longer die life, increased production, and a better finished product.

Whatever your industrial wire problems might be, Keystone metallurgical research and testing facilities are available to supply the answers.

INDUSTRIAL WIRE SPECIALISTS

Keystone Steel & Wire Company
PEORIA 7, ILLINOIS

DISTRICT 9 HOLDS SEVENTH ANNUAL CONFERENCE AT HARTFORD, OCTOBER 16

The seventh annual New England Purchasing Conference was held on Thursday, October 16, at the Hotel Bond, Hartford, Conn. The Purchasing Agents Association of Connecticut played host for the affair, which was sponsored by District 9, National Association of Purchasing Agents.

Other groups participating in the conference were the New England Purchasing Agents Association, Rhode Island Purchasing Agents Association, and the Western Massachusetts Purchasing Agents Association.



Laurence A. Fagan, General Conference Chairman.

The conference was called to order on Thursday morning by Laurence A. Fagan, Business Manager, Connecticut State Department of Health, immediate past District Vice President, and general chairman of the conference. Following the invocation by Dr. Lloyd F. Worley, First Methodist Church, Hartford, greetings were extended to the guests by Herbert H. Carter, Waterbury Companies, Inc., president of the Connecticut Association.

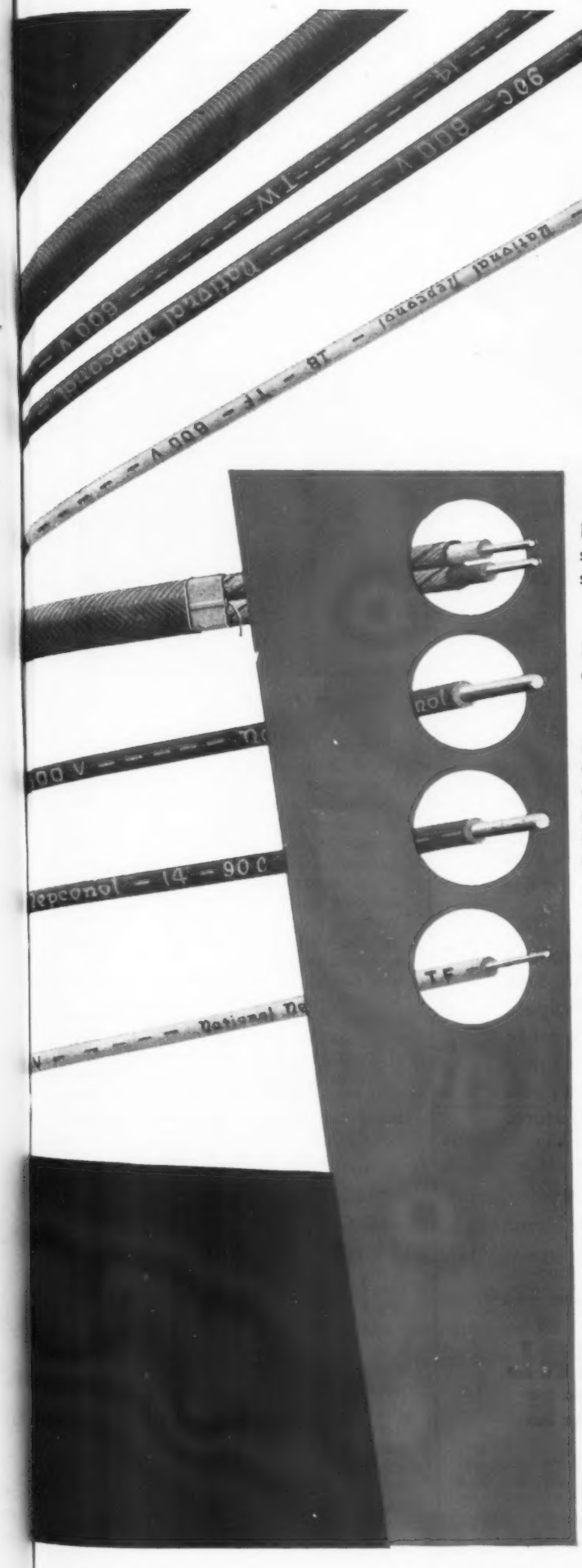
Daniel G. Donovan, Pepperell Manufactnring Company, then reported on the affairs of District 9.

H. Randall Smart, Standard Nut and Bolt Company, and national director for the Rhode Island Association, presided over the next portion of the program. He introduced Roger E. Gay, president of Bristol Brass Company, and president of the American Standards Association, whose address, "Standards", appears on page 109 of this issue of PURCHASING.

Paul R. Hatch, vice president for sales, Brown & Sharpe Manufacturing Company, spoke on "Machine Tools" and was followed by Larry S. Hamaker, assistant general sales manager, Republic Steel Company, discussing "Steel Problems."

Herbert Layport, Wyman-Gordon Company, vice-president of the New England Association, presiding at the afternoon session, first presented Robert A. Chadbourne, assistant vice-president,

(*Please turn to page* 218)



Nepconol Building Wires

FOR DRY LOCATIONS (Type T)—Used only in non-metallic sheathed cable. For operating temperatures up to 60°C. Permits smaller over-all diameter of cable.

FOR WET LOCATIONS (Type TW)—Moisture-resistant grade of Nepconol wire for wet locations. 60° C.

NEW—FOR "HOT-SPOT" WIRING—Wherever operating temperatures are extremely high, use Type 80°C. Provides higher voltage breakdown than ordinary primary insulation. Overall fibrous coverings are unnecessary. For even *higher* operating temperatures, National Electric has developed the *new* Types 90° and 105°C. wires.

Nepconol Fixture Wires

Types TF (solid or stranded) and TFF (flexible) for 600 volt service up to 60°C.

Formerly NE'on, *Nepconol* is the new trade name for National Electric's superior building wires and cables for general use in wet or dry locations. Nepconol thermoplastic insulation *resists* moisture . . . flame . . . acids . . . alkalies . . . oil . . . abrasion. Available in a wide choice of bright, permanent colors for easy identification.

All Nepconol Building Wires are clearly marked with size, type and voltage every two feet for ease of identification.

Nepconol Wires and Cables greatly exceed Underwriters' Laboratories, Inc. requirements.

Sold through leading electrical wholesalers.

EVERYTHING IN WIRING POINTS TO

National Electric Products

PITTSBURGH, PA.

3 Plants • 7 Warehouses • 42 Sales Offices



HERE'S THE BUTTON THAT COST $300



...that's why we switched to KEX Wiping Towels

"That little shirt button did $300 worth of damage. When Joe used an old shirt to wash up the press, he didn't see the button. It damaged the plate, it stopped production and cost the company $300."

This wouldn't have happened if Joe had used a Kex wiping towel—they're safe because they're *made* for wiping—they're uniform in size and absorbency. There's no time wasted in searching for just the right piece for the right job.

KEX IS A NATIONAL SERVICE. No matter where you are—whether your company is large or small—the Kex representative can work out a system of supplying wipers that will save *you* money. You pay only a small monthly rental and you get a systematically controlled supply of uniformly-sized, super-absorbent Kex as often as you need them. Nothing to buy—no big inventory to store. Why wait?



For complete information see your Classified Telephone Directory for nearest Kex distributor, or write Kex National Service, 295 Fifth Avenue, New York 16, N. Y.

"KEX" NATIONAL SERVICE

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KEX REG. U.S. PAT. OFF. NATIONAL SERVICE

It isn't Kex unless it's imprinted with the Kex name.

(*Continued from page* 214)

Associated Industries of Massachusetts and an instructor in industrial operations and processes at the College of Business, Boston University. Mr. Chadbourne spoke on "Electronics."

"Proper Perspective on Plastics" was the title of a talk by W. J. Connelly, assistant director of public relations, Bakelite Company, division of Union Carbide and Carbon Corporation. He was followed by Alfred V. Bodine, president of The Bodine Corporation and president of the Manufacturers Association of Connecticut, whose title was "Management Evaluates Purchasing."



Daniel G. Donovan, Vice President for District 9.

Bennett Pringle, Westinghouse Electric & Manufacturing Company, national director for the Western Massachusetts Association, presided at the forum session that closed the day's program. All conference acted as panel members for the discussion.

The banquet session was held in the ballroom on Thursday evening, with William E. Stratford, national director for the Connecticut Association, acting as toastmaster. Rt. Rev. John F. Callahan, Church of St. Thomas the Apostle, West Hartford, gave the invocation.

Vice President Donovan introduced the principal speaker of the evening, H. W. Christensen, director of purchases, Columbia-Geneva Division, United States Steel Company, president of the National Association of Purchasing Agents.

* * *

"PROGRESS IN BETTER LIVING" RHODE ISLAND ASSN. TOPIC

A regular meeting of the Purchasing Agent's Association of Rhode Island was held at the Narragansett Hotel, Providence, on Monday, October 27.

Guest speaker was Mr. Louis B. Shannon, Eastern District Manager of the Extension Division, DuPont Co. His subject was "Progress in Better Living." Mr. Shannon documented the story of American progress by exhibiting developments resulting from chemical research and explained how their production strengthens the national economy. He also displayed some new chemical developments which are still in the experimental and evaluation stage.



In these days of HIGH DIE COSTS

MicroRold® Stainless Steel Sheets

WILL SAVE YOU MONEY!

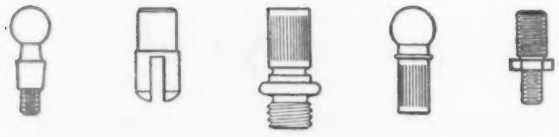
The unusual uniformity of gauge in MicroRold allows for closer die setting, assuring the fabricator of uninterrupted production in stamping, forming and blanking operations.

This closer control of MicroRold sheet thickness *increases the productive life of the die and reduces to an amazing degree the number of rejects.* One fabricator reports less than ½ of 1% breakage in a 12½" draw on a 17" blank with a rectangular cross-section.

From edge to edge—and end to end—only MicroRold has such outstanding uniformity of gauge.

WASHINGTON STEEL CORPORATION

WASHINGTON, PENNSYLVANIA

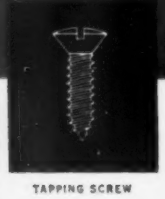




Automatic Screw Machine Products

in steel, brass, or other metals . . . from 1/16" to 2¼" diameter are simple production runs at Blake & Johnson. Slotting, cross-drilling, burring, broaching, slabbing, roll-threading and drilling—are every-day operations. Our engineering and manufacturing know-how is at your service whether you need custom-built machine parts or slotted as well as Phillips head machine screws, tapping screws, stove bolts, Twin-Fast® wood screws, special headed products, machine screw nuts, rivets, chaplets, wire forms.

Write for new catalog.



TAPPING SCREW



TWIN-FAST SCREW



STOVE BOLT



MACHINE SCREW



MACHINE SCREW NUTS



SPECIAL WIRE FORM

fastenings

BLAKE & JOHNSON

SINCE 1849

WATERVILLE 48, CONNECTICUT

HOWARD T. LEWIS GUEST AT DAYTON MEETING

Dr. Howard T. Lewis, widely known purchasing authority from the Graduate School of Business Administration, Harvard University, was the principal speaker at the October 23 meeting of the Purchasing Agents Association of Dayton. Dr. Lewis' topic was "Pushing Back the Frontiers of Purchasing."



Dr. Howard T. Lewis, and Joe R. Geyer, first Vice President, Dayton Association.

Among the distinguished guests at the meeting were Lewis A. Jones, past president of the National Association of Purchasing Agents, and, like Dr. Lewis, winner of the Shipman Gold Medal Award of N. A. P. A.; George P. Brockway, past president of N. A. P. A., and Julian G. Davies, also a Shipman medal winner. Dr. Lewis, and the guests, are members of the Procurement Survey Committee, Procurement Division, Air Material Command, Wright-Patterson Air Force Base, Wright Field, which is near Dayton.

An added feature of the program was the showing of the film, "Industrial Purchasing", shown through the courtesy of PURCHASING Magazine.

HOBO KING GUEST OF CINCINNATI ASSN.

Mr. Jeff Davis, "King of the Hoboes" was guest speaker at the regular monthly meeting of the Cincinnati Association of Purchasing Agents which was held at the Hotel Sheraton-Gibson on November 11.

Mr. Davis' talk was entitled "A Real Hash on Life and Plenty of Hot Sauce."

"DO MINDS GROW OBSOLETE?" FT. WORTH MEETING TOPIC

A special dinner meeting of the Purchasing Agents Association of Fort Worth was held at Briggs Weavers Grapevine Lake House. Jack Phenix, of the Retail Institute was guest speaker at the meeting. His subject was "Do Minds Grow Obsolete?"



FORD MOTOR COMPANY OFFICIALS INSPECT THE INTERCHANGEABLE UNITS OF THE . . .

New G-E Motor Control Center

Since January, over 10,000 men from production and management of leading industries (see above) have taken a thorough look at the latest equipment for the centralized control of a-c motors up to 200 hp. Their reports indicate enthusiastic approval of what they saw. Here's why:

VERSATILE. Because units are easily interchangeable without waste space, a variety of arrangements can be made. For example—two Size 1 or 2 starter units require the same space as a Size 1, 2, or 3 reversing starter.

ACCESSIBLE. A four-inch continuous wiring trough provides ample wiring space. Components are mounted on an easy-to-handle frame and accessible from all sides when lifted from cabinet. Starters are front-connected. Master terminal boards can be swung out of compartment for extra working space around conduit.

PROTECTED. Will withstand 25,000 amperes RMS short-circuit current, substantiated by certified Laboratory tests.

For more information on this new G-E motor control center, contact your nearest G-E apparatus sales office or write for Bulletin GEA-4979A today. *General Electric Company, Schenectady 5, N. Y.* 730-42

GENERAL ELECTRIC



EASY TO INSTALL AND INSPECT. Interchangeable units; main bus completely accessible; incoming line connections are easily made.



EASY TO WIRE. Four-inch wiring trough; components accessible from all sides; front-connected starters; doors swing more than 90°.

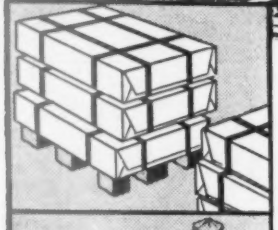


EASY TO SERVICE. Units are easily disconnected from bus and locked in test position (above). Barriers between units are easily removed to facilitate wiring (below).

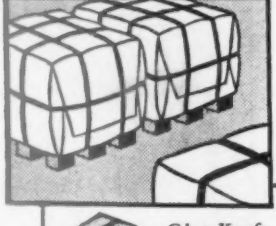


NEW PROTECTION









wrap it...ship it! store it!... **IN GLAS-KRAFT**

GLAS-KRAFT — The smoothest, lightest, most pliable reinforced paper available — keeps your materials, products and equipment safe from weather, wear and the hazards of transit or storage. Strong and tough, it is hard to puncture and difficult to tear. It is the most waterproof reinforced paper on the market.

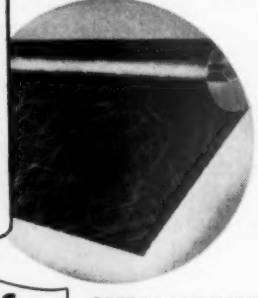
Ask for GLAS-KRAFT . . . *the non-deteriorating, all-purpose paper.* Use it for wrapping and packaging steels and other metals, machinery, paper, leather, textiles, chemicals, cement, wirestock, furniture, etc. Use it for wraps, covers, shrouds, tarpaulins, bag, box, case and barrel liners. Use it for unitized loading of freight cars and trailers. Use it for protecting floors or curing concrete. Use it when you want a paper to perform where others fail.



Glas-Kraft has amazing all-directional strength because it contains up to 315 feet of continuous specially-treated fibers swirled into each square foot. Fibers are waterproof bonded under heat and pressure between two plies of finest specification kraft.

FREE. Send for new Glas-Kraft Folder and Prices today. Glas-Kraft is supplied to the U. S. Government in quantity. It meets JAN-P-125 specifications for barrier wrapping material, Types E-1, E-2, E-3. It also meets Federal Specifications UU-P-147, UU-P-264-A and UU-P-271-B.

OTHER GLAS-KRAFT PRODUCTS



- SEALING TAPE for Carton Closures. Five times stronger than ordinary sealing tape. Will not cut carton. Replaces string, rope, wire and strappings.
- GLAS-TAPE (ungummed). A simple attachment on your present equipment permits you to use *ungummed* Glas-Tape with Darex adhesive. Weatherproofs the manufacturer's joint on your own cartons. Creped outer surface minimizes joint itself. Also available in *gummed* form.

GLAS KRAFT

BETTER INDUSTRIAL PAPER PRODUCTS BY

GLAS-KRAFT, INC.

LONSDALE, RHODE ISLAND

TRADE MARK OF GLAS-KRAFT, INC.

NIGP Annual

(*Continued from page* 200)

Schaefer, Vice President and General Manager, Wichita Division, Boeing Airplane Co., Wichita, Kansas, at the luncheon meeting; "Commodity Record Card Systems", Leo Weil, Commissioner, Division of Purchases and Supplies, Cleveland; "Commodity Catalogs", I. R. Vanderberry, Division of Purchase and Printing, Commonwealth of Virginia, Richmond, Va., and "Preparation and Utilization of Specifications", by Joseph L. Rose, Commissioner of Public Works and Purchasing Agent, Evanston, Ill.

Mr. Vanderberry stated that there are three purchasing department publications that in his opinion "are highly desirable and when properly done and used, will convert to order and composure a great deal of confusion and sometimes chaos now prevailing in governmental centralized purchasing." One of these, he said is a policy manual for the information of agencies, vendors and taxpayers; the second is a procedural manual, primarily for the staff; and the third working tool, the subject of his talk, a Procurement Catalog. Readers are referred to the November issue of PURCHASING Magazine, which contains an illustrated article by Mr. Vanderberry, explaining the development of the Virginia commodity classification system and procurement Catalog.

Mr. McMillan's interesting paper on the subject of "Market Analysis", bearing the title "What Makes Price", appears in this issue of PURCHASING Magazine.

Mr. Butler in the course of his talk on standardization, explained that the purchases of his department amount to $2,500,000 a year, for which 17,000 purchase orders are issued. "We have a standardization committee with the purchasing agent as chairman", he said. "Periodically we meet with the business manager and receiving clerks of the various institutions for the purpose of discussing needs and methods leading toward agreement and standardization wherever possible. To these meetings we invite representatives of the manufacturers and wholesalers with whom we do business, to discuss with us the specifications looking to the standardization of many of our necessities. As a result our bid lists carry many items of like specifications for each institution and we are gradually working toward a still better result."

(*Please turn to page* 224)



Electrical resistivity, fine smooth finish, and low cost are all combined in this household panel-board circuit breaker. It's readily and rapidly molded from **BAKELITE General-Purpose Phenolic BM-2498.**

Made for Heinemann Electric Co., Trenton, N. J., by Kuhn & Jacob Molding & Tool Co., Trenton, N. J.



This plunger for commercial orange juice squeezer is molded from **BAKELITE General-Purpose Phenolic BM-93.** Strong, smooth, easily cleaned, it is also resistant to action of citric acid.

Made for Turbo Machine Co., Lansdale, Pa., by Plastic Fabricators Inc., Fernwood, Pennsylvania.



This loading port ring for automatic clothes dryer stays smooth—won't snag clothes. Made from **BAKELITE Improved-Impact Phenolic BM-6260,** it resists soap and detergents, heat, and impact in loading clothes.

Made for Hamilton Mfg. Co., Two Rivers, Wis., by Chicago Molded Products Corp., Chicago, Ill.



Slide file drawers are molded from **BAKELITE General-Purpose Phenolic BM-14660,** which offers these advantages: easy flow for deep-draw molding, rich brown mottled finish, and dimensional stability.

Molded for Barnett & Jaffe, Phila., Pa., by Anrob Mfg. Co., Phila., Pa.



Cap for automatic venting and vacuum sealing closure for surgical fluid containers is molded of **BAKELITE Heat-Resistant Phenolic BM-13335.** It withstands repeated sterilization in saturated steam at 250 deg. F., 15 psi. pressure for 30 minutes.

Made for American Sterilizer Co., Erie, Pa., by Perry Plastics Inc., Erie, Pa.



This "Fireguard" fuse coupling contains a low amp. safety fuse, can be plugged into standard wall outlets. Molded from **BAKELITE General-Purpose Phenolic BM-2438,** the case has high dielectric strength and handsome lustrous finish.

Molded for F. H. Smith Mfg. Co., Chicago, Ill., by Hauser Products, Chicago, Ill.

Good reasons all— for selecting Phenolic Plastics!

If you're looking for impact strength, ease of molding, chemical resistance, or a combination of such qualities—try BAKELITE Phenolic Plastics!

The wide variety of BAKELITE Phenolic Plastics makes your selection easy. You can pick the plastic that's *right* for the job. And the examples above show how many *different* jobs phenolic plastics are finding today.

Make sure that your product is made from the best, most useful, most suitable molding material. Look into BAKELITE Phenolic Plastics for better design, performance, saleability. Our engineers will help you. Write Dept. EB-25.

BAKELITE

PHENOLIC PLASTICS

TRADE MARK

BAKELITE COMPANY

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30 East 42nd Street, New York 17, N. Y.

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...speediest, longest-lasting alcohol resistant foam ever produced!

Here at last is a really effective extinguishing agent for use against fires in water soluble solvents . . . Pyrene* Alcohol Resistant Foam (patent pending). This brand-new compound produces far and away the most stable foam ever known. Its effective life can be measured in *hours and days* instead of mere minutes. The blanket it provides stays on long after there is any chance of flames breaking out again. Actually, Pyrene Alcohol Resistant Foam is more than its name implies. It is really an *all-purpose* foam—effective against all flammable liquid fires—gasoline, oils, paints, alcohols, ketones, esters and ether. For complete information, write Pyrene.

*T.M. Reg. U.S. Pat. Off.

Pyrene AIR FOAM

PYRENE MANUFACTURING COMPANY
692 Belmont Ave., Newark 8, New Jersey
Affiliated with C-O-Two Fire Equipment Co.

(*Continued from page 222*)

"We have no bureau of standards nor testing laboratory, and for this reason we have relied over the years on brand names for a great many items of common use.

"We are careful to designate only those brand names which are competitive and over the years have had little complaint from the vendors. When buying hospital, office and household furniture, and many other items of equipment, the words "or approved equal" are included along with the brand name specified. The purchasing agent is the final judge as to whether or not the item bid on is equal in all respects to the article specified.

"The yearly contract items such as fuel oil, coal, electric lamps, gasoline, bituminous paving materials, photographic paper, etc., are all bought on county, state or government specifications. These items comprise probably two-thirds of our purchases."

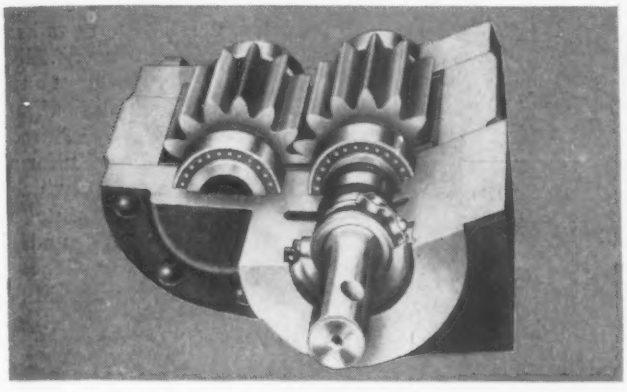
Deputy City Purchasing Agent Berry of Chicago, talking on salvage, said that prior to 1948, the salvage program in Chicago did not receive much attention, and in some years sales were as low as $6,000. However, the first year a practical salvage program was put into effect, salvage sales reached $106,000, and in 1951 the figure was over $151,000. These figures do not include interdepartmental transfers.

Mr. Berry emphasized the importance of properly segregating both ferrous and non-ferrous metals, for which his department has established several classifications. Classifications have also been established for waste paper, rags, and glass is broken down into color and white. He also stressed the need for suitable storage space for scrap until such time as the market offers the best prices for it. Bids are procured from dealers, and the scrap is sold to the highest bidder. "If a dealer 'welshes' on a bid," he declared, "that dealer is not given the opportunity to bid on future allotments." Mr. Berry said that his department has found a market for old fire hose, egg cans, lamp posts (which are sold to landscapers) and many other things which ordinarily are considered to have only a scrap value.

Leo Weil, commissioner, Division of Purchases and Supplies, Cleveland, who recently installed a card record system similar to that installed in the Chicago Purchasing Department, warned that installing

(*Please turn to page 226*)

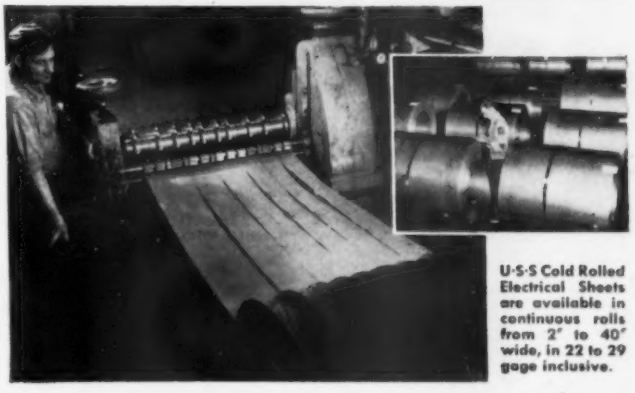
Short stories of savings with U·S·S Steels



Non-critical U·S·S CARILLOY STEEL saves $40 a ton in gears of heavy-duty rotary pumps

● Tough, wear resistant steel is needed to assure reliable performance in the precision gears of these pumps. The steel normally used is rich in critical elements. Because of its unavailability U·S·S metallurgists recommended as an alternate, U·S·S CARILLOY 5120, an available straight chrome steel. It worked fine.

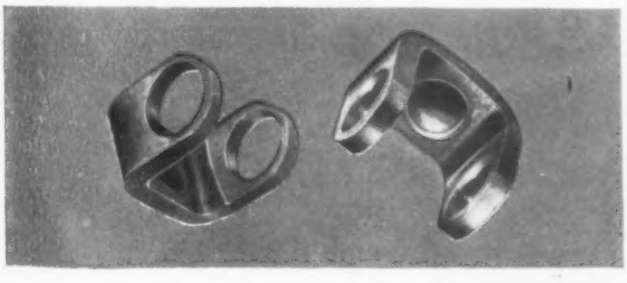
Says T. C. Kane, Chief Engineer of Commercial Shearing & Stamping Co., "We are frankly surprised at the excellent results we get with this new grade. Not only do the gears meet our high performance standards, but we find this steel easier to machine and heat treat and we pay a lower grade extra on it—save $40 on every ton we buy."



U·S·S Cold Rolled Electrical Sheets are available in continuous rolls from 2" to 40" wide, in 22 to 29 gage inclusive.

Wide continuous coils of U·S·S Cold Rolled Electrical Steel Sheets reduce die wear, scrap waste and inventory

● Magnetic Metals Company, Camden, N. J. produces 3 million (steel) magnetic core laminations a day. Costs here are cut in two ways: (1) They use U·S·S Cold Rolled Electrical Sheets which possess important advantages over hot rolled sheets. Better punchability of coils permits faster stamping, means bigger output and lower costs. Their thinner, less abrasive surface oxides result in longer die life and more laminations per die grind. (2) By buying U·S·S Cold Rolled Sheets in *continuous* coils 30" and 31½" wide, then slitting them to narrower widths to meet their production schedules, they keep inventory down, eliminate partial stampings and so minimize scrap loss.



Stamped and cold formed from U·S·S MAN-TEN High Strength steel, these universal joint yokes weigh less, cost less, show fewer rejects than forgings

● Sometimes it costs less to use steel that costs more. Witness these yokes for the universal joints on farm tractor steering shafts. Originally they were forged from medium carbon steel, then heat treated for strength. Costs were in line, but heat treating often warped the yoke "ears" and rejection losses were high.

To overcome this, Mechanics Universal Joint Division of Borg Warner Corporation decided to stamp these parts and cold form them from high strength U·S·S MAN-TEN steel. Warping has been eliminated. Rejections are greatly reduced. Less machining is required.

The yokes weigh less, take less time to make and most important of all, cost less than before.

If you want to cut costs for your company

Do what these manufacturers have done—bring your steel problems to us.

Whether you are faced with the necessity of switching over from a steel you normally buy to an alternate grade containing less critical materials, or just want to get better performance out of the steels you are using, we believe we can help you.

The metallurgists and steel engineers we have assigned to this important job of helping you use steel more *effectively*, bring to your problems wide experience and a thorough knowledge not only of steel but the very latest ideas and time-saving techniques in the working and treatment of steel. To obtain their help just call the nearest U·S·S District Sales Office or write to United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

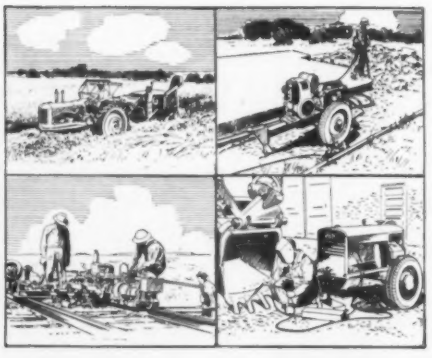
USS

Only STEEL can do so many jobs so well

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NATIONAL TUBE DIVISION, PITTSBURGH · TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA. · UNITED STATES STEEL SUPPLY DIVISION, WAREHOUSE DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

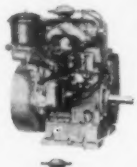
U N I T E D S T A T E S S T E E L



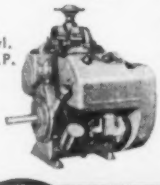


WISCONSIN *Air-Cooled* ENGINES

Single cyl. 3 to 9 H.P.



2-cylinder 7 to 13 H.P.



V-type 4-cyl. 15 to 30 H.P.

Fit the Job and the Machine

Because Wisconsin Air-Cooled Engines are supplied in a complete power range, from 3 to 30 H.P., in 4-cycle single cylinder, 2- and 4-cylinder types, there is an ideal size to fit all types of machines and power applications within this range, without wasted power and with maximum power service benefits. Heavy-duty construction, combined with extremely compact design and light weight are added advantages—and dependable AIR-COOLING permits trouble-free service under all climatic conditions.

Specify Wisconsin Heavy-Duty Air-Cooled Engines for the utmost in power satisfaction. Write for descriptive data.



WISCONSIN MOTOR CORPORATION

World's Largest Builders of Heavy-Duty Air-Cooled Engines

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F-20

HALSEY TAYLOR *Coolers*

SEE OUR CATALOG IN SWEET'S

THE HALSEY W. TAYLOR CO. WARREN, OHIO

(*Continued from page* 224)

a new record system requires considerable study, to assure that the system decided upon meets departmental needs. No one system is universally satisfactory, he said.

Wednesday, the conference sessions presented the following talks: "Storing and Stores Control", by Henry L. Snellings, Jr., assistant city purchasing agent, Richmond, Va.; "Textile Specifications", by Alfred Silverman of the Angelica Uniform Company of St. Louis, after which the meeting was converted into a Purchasing Problems Clinic under the leadership of Joseph W. Nicholson, city Purchasing agent, Milwaukee.

Mr. Snelling in the course of his talk on stores and stores control said that the only items which should be stored are those not readily available from immediate sources, and quick turnover items. Articles which do not have a quick turnover but which are readily available from supplies should not be stored, he said. The vendor includes in his cost price, his storage costs, and the purchasing agent also has to figure on 8 to 12% cost of storing the same merchandise.

NEW ORLEANS ASSOCIATION VISITS JOHNS-MANVILLE

Members of the Purchasing Agents Association of New Orleans recently visited the Johns-Manville Corporation plant in Marrero, Louisiana. (A picture of the group attending this affair will appear in next month's issue of PURCHASING). They were guests of N. J. Gubler, who is also president of the association.

The program began with a moving picture which explained the formation of the company. This was followed with a guided tour through two plants—one making roofing shingles and asbestos siding, the other manufacturing piping. Dinner was served after the plant visitation.

7TH DIVISION COMMANDER N. Y. ASSN. GUEST SPEAKER

A regular meeting of the Purchasing Agents Association of New York was held on October 21 at the Builders Exchange Club. Guest speaker was Lt. Gen. L. L. Lemnitzer, Deputy Chief of Staff for Plans and Research, Department of the Army. General Lemnitzer, who commanded the 7th Infantry Division in action in Korea, discussed the struggle there.

Guest speaker at the afternoon forum session was Richard R. Crow, training director, United States Rubber Company. Mr. Crow's topic was "The Training and Development of Office Personnel."

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Ames Dial Comparators make the inspection of duplicate parts an extremely simple, rapid and accurate operation. Ames Comparators are strictly impersonal in their accuracy — the results being in no way dependent on the skill or judgment of the operator. The pressure of the gauging members against the work is mechanically determined and therefore uniform.

Check the Ames Dial Comparators shown — one of them may solve a Quality Control problem for you.



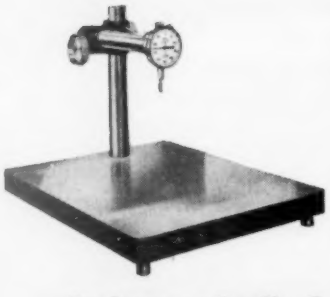
Ames No. 1 Dial Comparator is an easily adjustable bench model that measures objects up to 2" in cross section. The table bracket may be quickly located and locked in position on the column. The table itself may be further positioned and locked for final fine adjustment. This comparator is designated *Ames No. 1W* when equipped with dead-weight contact pressure and contact area to ASTM specifications for measuring resilient materials, such as rubber, plastics, etc.



Ames No. 2 Dial Comparator is a compact, stable bench model for measuring non-yielding materials — sheet metal, glass, hard rubber. The 2" diameter table is adjustable to bring pointer to zero. *Ames No. 2W* is similar to the Ames No. 2, but is furnished with dead-weight contact pressure and contact areas to ASTM specifications for checking textiles, plastics, sheet rubber, etc.



Ames No. 13 Dial Comparator features flat-ground, cast-iron base of ample size for using V-blocks and locating fixtures for checking rounds, flats and odd shapes. Also, the No. 13 can be fitted with a fine adjustment for close setting. Accurately adjustable bracket holds any Ames Micrometer Dial Indicator.



Ames No. 130 Dial Comparator is designed especially for inspecting comparatively large parts. For this reason, the flat-ground steel base, the adjustable indicator support on which can be mounted any Ames Micrometer Dial Indicator, and the upright column are proportioned to suit the user's particular requirements.

Send us your Quality Control job specifications, and we will supply complete details and proposal without obligation.

Representatives in principal cities. B. C. AMES CO. *31 Ames Street Waltham 54, Mass.*

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YOUNGSTOWN ASSOCIATION SEES PURCHASING FILM

A regular meeting of the Youngstown District Purchasing Agents Association was held on Tuesday, October 28, at the Youngstown Club. Feature of the program was the showing of the sound color film, "Industrial Purchasing." Kenneth W. McKinley, Cleveland representative for PURCHASING, introduced the film and led the discussion that followed.

Committee chairmen for the coming year, recently appointed by President J. A. Renton, are: C. A. Gabig, program; I. G. Fox, education; J. L. Florig, attendance; O. H. Jones, constitution; J. A. Nivus, public relations; G. P. Miller, membership; C. A. Gabig, social; and G. R. McQuiston, national affairs.

Among new members of the Youngstown Association are: Fred Albrecht, Stambaugh Thompson Co.; Mike Albright, Mercer Tube & Mfg. Co.; Samuel Lehman, Youngstown Foundry & Machine Co.; Carl Blumenschein, General Fireproofing Co.; and Fred Limestahl, The Deming Company.

FORMER BASEBALL STAR P.A.A.C.M. GUEST

Wally Pipp, famous first baseman of the New York Yankees baseball club in years gone by, was featured speaker at a meeting of the Purchasing Agents Association of Central Michigan on October 21. The meeting was held at the Owosso Club, Owosso, Mich.

Brief company stories of Renown Corporation and Auto-Lite Battery were given by Elmer Bissard and Clarence Smith.

LANCASTER CLUB HAS PANEL DISCUSSION

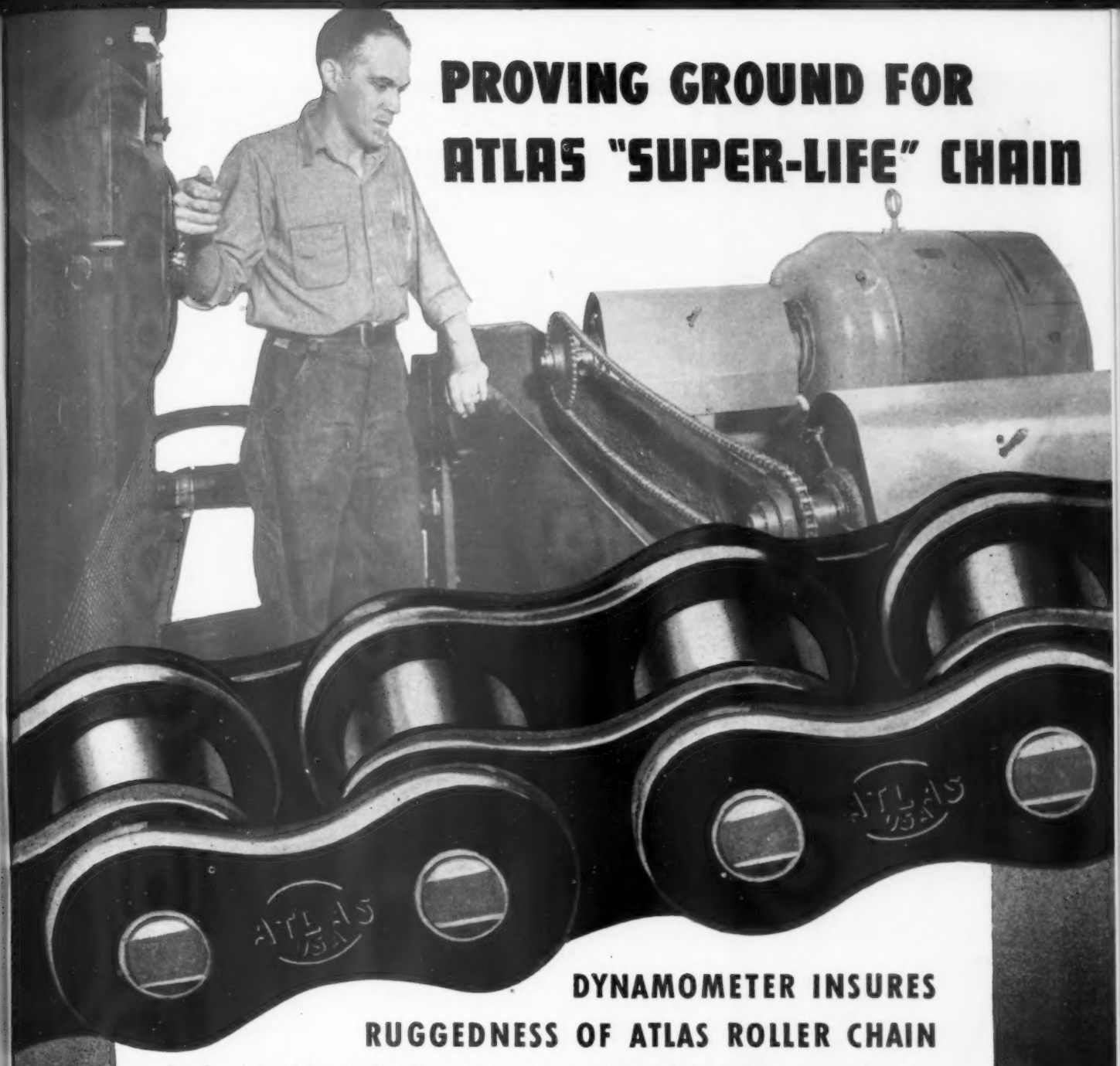
A "Dual Panel Discussion" on the topic of mutual benefit highlighted the November 18 meeting of the Purchasing Agents Club of the Manufacturers' Association of Lancaster, Pa. The meeting was held at the Arcadia. Participating in the panel discussion were representatives from four local mill supply houses.

Charles Reeder, assistant economist at Armstrong Cork Company, was guest speaker at the October 21 meeting. He discussed the "Economic Outlook for 1953."

MONTREAL ASSOCIATION VISITS BREWERY

A plant visit to Molson's Brewery Ltd. was held by the Purchasing Agents Association of Montreal on Friday afternoon, November 14. Among the features of the visit was a demonstration of new material handling devices.

J. Frank Stephenson, president of the Canadian Council, was guest speaker at the October 21 meeting of the association. Mr. Stephenson's topic was "Purchasing—Guestimating."



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TOLEDO SERV-A-SHOW A BIG SUCCESS

The third annual Serv-A-Show of the Toledo Purchasing Agents Assn., held at the Toledo Yacht Club the evening of October 16, was the biggest and best to date.

Two hundred and seventy members and guests began coming by late afternoon for the bountiful beef buffet that has become a necessary adjunct of the Serv-A-Show.

Guests crowded around the exhibits, which covered a wide range of service and supply for industry in the Toledo area—from calendars and wiping cloths to awnings and electric motors.

Exhibitors were generous with gifts and souvenirs, and the "boodle bags" carried by the viewers were filed with cans of lighter fluid, automatic pencils, ash trays and similar items. The exhibitors were willing that the viewers be just as well filled with information about the services and materials displayed.

At nine o'clock, every exhibit had been thoroughly inspected, both those in the ballroom and those in the lobby on the main floor, and the exhibitors offering prizes for lucky guesses or numbers were read to announce the winners. Ken Roepke handled this from the microphone in the balcony.

Member firms exhibiting at this year's Serv-A-Show were: Romanoff Electric Motor Service, Inc., Toledo Abrasive and Supply Co., Bigelow-Gibson, Inc., Bostwick-Braun Co., Mill and Factory Supply Co., Graybar Electric Co., Sheldrick Mfg. Co.

Ohio and Michigan Paper Co., A. P. Parts Co., Torrence Radio, Inc., Toledo Calendar Co., Maumee Wood Products Co., The Amco Corp., Mellocraft Co., Sam C. Earley Corp., Tisco, Inc., Superior Overall Laundry, Loeffler Electric Co., George L. Freeman Co., Toledo Pickling and Steel Co., Eriksen's, Inc., The Fred W. Kiemle Co., Coe's Awning and Specialty, H. Poll Electric Co., Kellermeyer Chemical Co., M. and S. Mfg. Co., Gulf Refining Co., Cornell Supply Co., Electric Auto-Lite Co. and Liberty Highway Co.

Credit for the wonderful success of this year's Serv-A-Show goes to President Norm Earley, who directed it, to Johnny Weygandt and Bob Wiskochil, who helped him, and to Mel Schneider, who handled reservations for the exhibits.

EXECUTIVE NIGHT HELD BY BUFFALO ASSN.

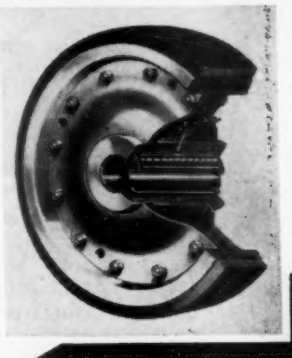
Executive Night was held by the Purchasing Agents Association of Buffalo on Wednesday, November 12 at the Hotel Sheraton.

Featured speaker was Mr. Lester P. Faneuf, Secretary, Treasurer and Asst. Gen. Manager of Bell Aircraft Corp. His subject was "Helicopters As a Business."

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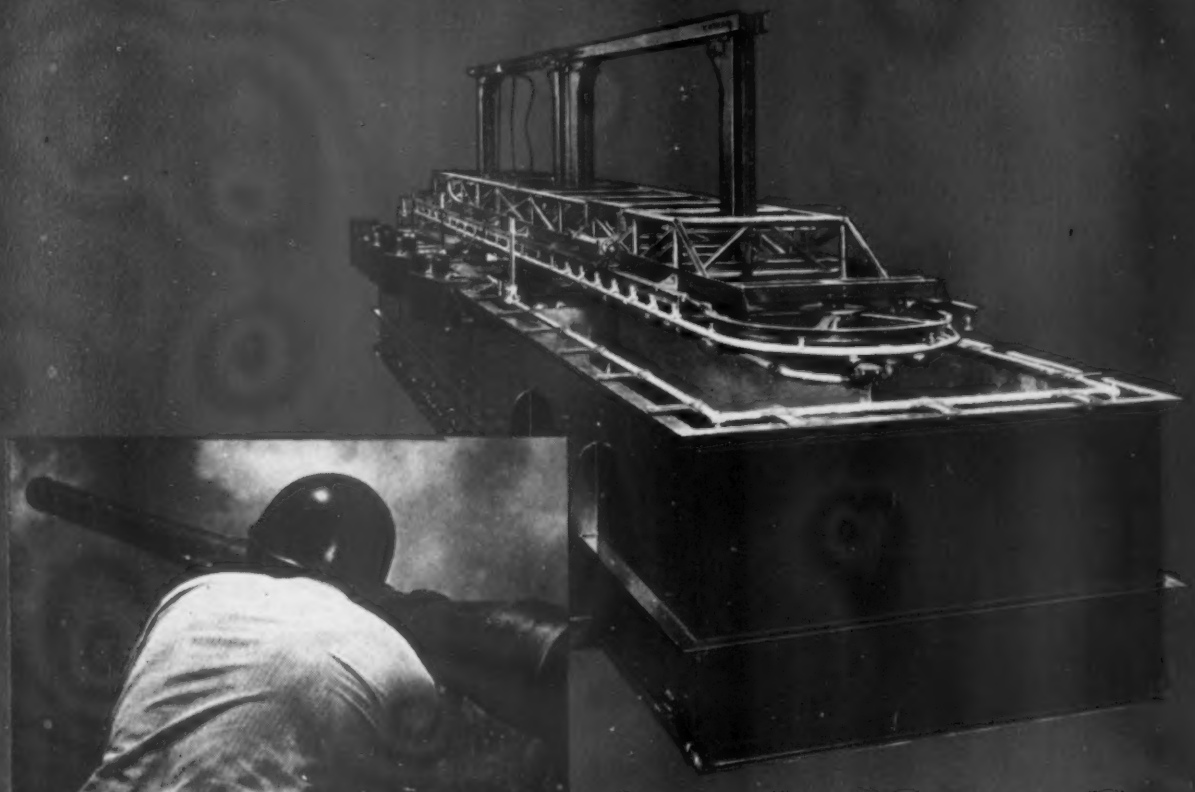


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If you are using or choosing fractional h.p. motors, why not write today for complete information. All EMC and CYCLOHM standard motors are easily adaptable to meet special specifications. Our sales engineers will be happy to give your problems prompt, efficient attention. Write or phone (Racine 2-2731) ask for Chief Sales Engineer.

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"MAKE OR BUY" TOPIC AT TWIN CITY MEETING

Regular "huddles" preceded the regular monthly meeting of the Twin City Association of Purchasing Agents at the St. Paul Athletic Club on November 12.

The first session was a discussion on "When to Manufacture and When to Buy" presided over by Mr. Elmer Olson. Mr. Art Carlson of U. S. Rubber Company then lead a disoussion on "Rubber." Dinner was held in the Ladies Dining Room of the club and Mr. O. W. Irwin, president of the Rail Steel Bar Assn. of Chicago was the evening's guest speaker

"RECIPROCITY" TOPIC AT DALLAS ASSN. MEETING

A regular meeting of the Purchasing Agents Association of Dallas was held on Thursday, November 13, at the Melrose Hotel. Guest speakers for the evening were R. G. Venema, George A. Hormel & Co., whose topic was "Reciprocity"; George C. Eason, Delhi Oil Corp., who spoke on "Inventory Control"; and E. D. Johnson, Vinson Supply Co., whose subject was "Supplier Relations."

The Dallas Association's Annual Ladies Night Party will be held on Wednesday, December 10 at the Lakewood Country Club.

R. C. SWANTON GUEST OF NEW ENGLAND ASSOCIATION

Robert C. Swanton, Director of Purchases, Winchester Repeating Arms Co., Div. of Olin Industries, was guest speaker at the regular meeting of the New England Purchasing Agents Association. The meeting was held at the Hotel Vendome, Boston, Mass. Mr. Swanton's topic was, "Let's Take a Look."

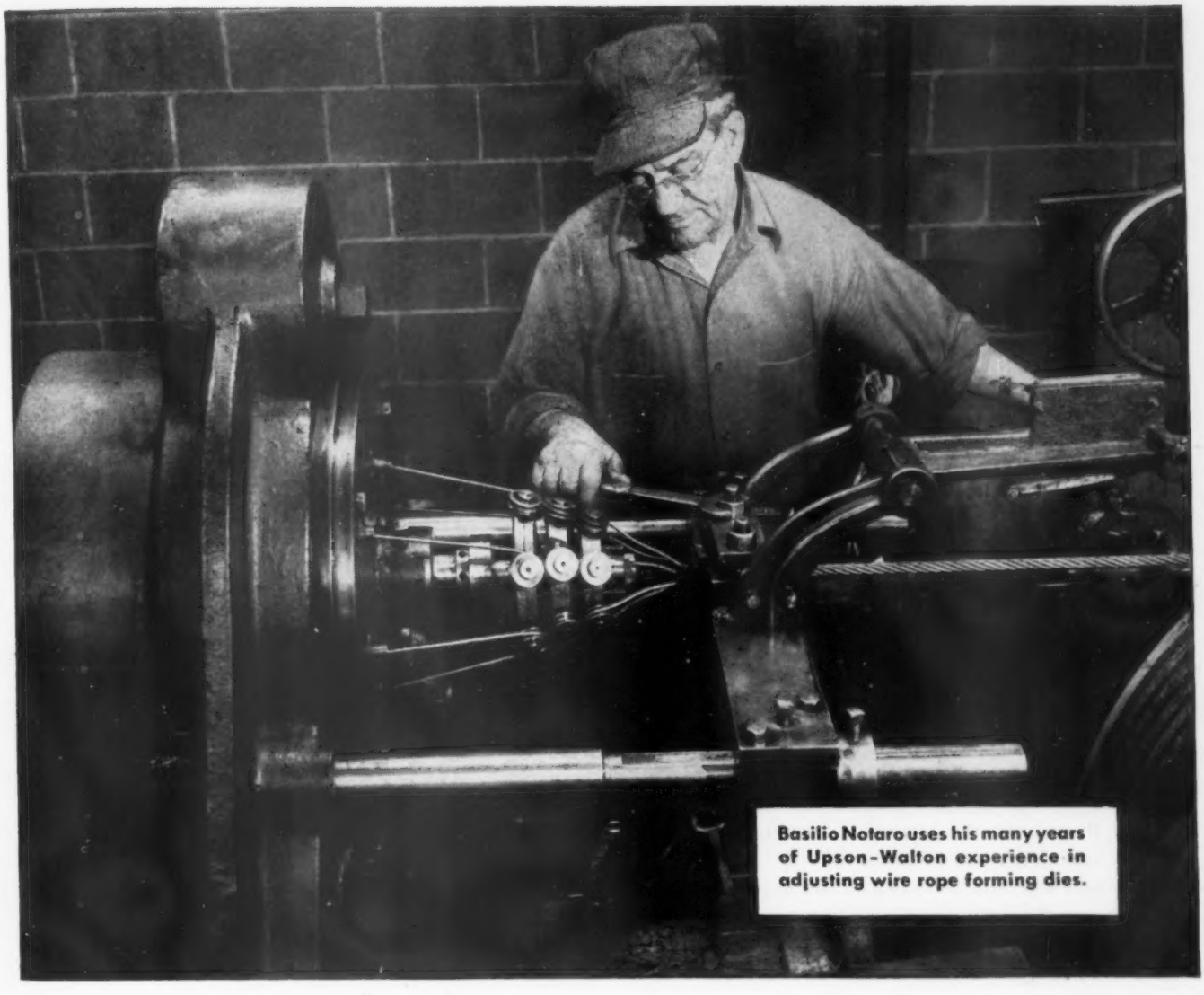
Annual Christmas Party of the New England Purchasing Agents Assn. will be held on December 8 in the Main Ballroom of the Hotel Bradford, Boston.

PHILADELPHIA ASSOCIATION SCANS FLYING SAUCERS

The elusive, bemusing flying saucer was the subject of a regular meeting of the Purchasing Agents Association of Philadelphia on Thursday evening, November 13. The meeting was held in the planetarium of the Franklin Institute, where the director, Dr. I. M. Levitt, spoke on "Flying Saucers—Facts and Fancy." Dr. Levitt, an authority in the field, was the first to break the story on temperature inversions as a cause of flying saucer stories.

The general forum was held in the afternoon in the institute's lecture hall. The speaker was Samuel M. Berkowitz, senior staff engineer, who talked on "Present and Future Methods of Control of Air Traffic."

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IT takes more than machines to build an *outstanding* wire rope . . . it takes men with the skill born of long experience. Upson-Walton wire rope is engineered for safety . . . and quality control checks are applied throughout manufacture by men who are craftsmen at their tasks.

Specify Upson-Walton for the extra care and experience that mean longer, safer service from your wire rope.

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Wire Rope • Tackle Blocks • Fittings

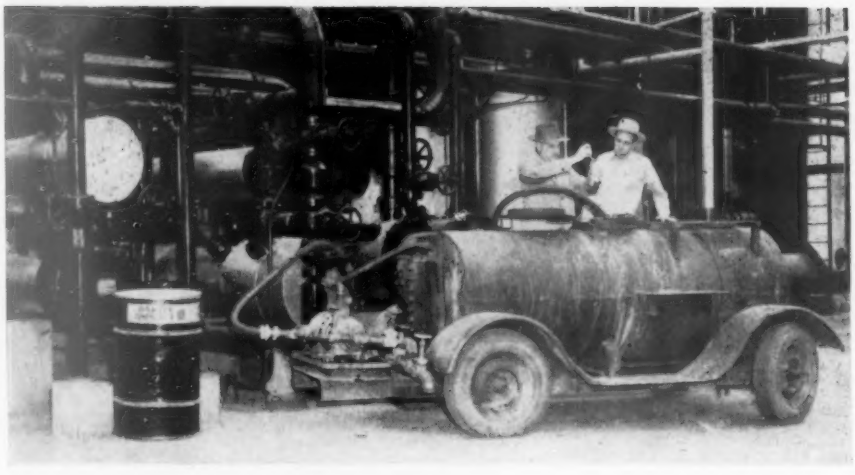


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They also got, free of charge, the drawings from which they built the portable cleaning unit; the solution-testing kit in the hands of the Oakite Representative; and the time, knowledge, and experience of the Oakite man himself.

They got complete satisfaction: they've been Oakite users for over seventeen years!

That's the kind of service you get from Oakite: Designed-for-the-job materials. Expert advice and help in setting up facilities. Instruments for controlling solution strength. The on-the-job experience of over two hundred cleaning specialists, backed up by Oakite's research and service laboratories.

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PURCHASING AGENTS STAGED MANUFACTURERS' AND DISTRIBUTORS' NIGHT—NOV. 12

More than 600 purchasing agents, manufacturers, sales managers, engineers and other business executives were present, Wednesday evening, November 12, for the 23rd Annual Manufacturers' and Distributors' Night meeting of the Purchasing Agents Association of Washington. The event took place in the Spanish Ballroom of the Olympic Hotel in Seattle.

Arthur Erickson, District P. A., Union Oil Co. of California, and President of the Purchasing Agents Association of Washington, presided, and Sidney F. Woodbury, President, Woodbury & Co., Portland, Oregon, acted as toastmaster.

Honored guests at the head table included: Allan Pomeroy, Mayor of Seattle; John H. Anderson, Mayor of Tacoma; Louis H. Unzelman, Mayor of Everett; L. Everett Landon, President, Tacoma Chamber of Commerce; Wallace Campbell, Vice President, Seattle Chamber of Commerce; Roy L. Gardner, President, Seattle Engineers Club; George A. Nethercut, President, Industrial Advertisers' Council of Western Washington; James Abbott, President, Seattle Sales and Advertising Club; Paul R. Wineman, President, Sales Executives Club of Seattle; Robert Burnett, President, Industrial Traffic Managers Association; Robert Bone, President, Transportation Club of Seattle; John Nelson, President, Electric Club of Washington; Carl Schoeggl, President, National Office Managers Association; J. E. Orrange of Vancouver, B. C., President, Purchasing Agents Association of British Columbia; Don J. Tenney of Portland, President, Purchasing Agents Association of Oregon; Emma Darst, President, Women's Group, Purchasing Agents Association of Washington; Emerson C. Harvey, President, Inland Empire Group, Purchasing Agents Association of Washington and George S. Hawley, President, Washington Gaveliers.

Purchasing agents in charge of arrangements for the event were: Frank C. Bergmann, Pacific Coast Co.; H. Gordon Ainslie, Barde Steel Co.; William Angus, Pacific Marine Supply Co.; Paul R. Hendricks, City of Seattle; L. C. McIver, Puget Sound Power & Light Co.; M. C. Staley, A. M. Castle & Co.; George S. Wilson, Atlas Foundry & Machine Co., Tacoma; M. F. Sessions, Bethlehem Pacific Coast Steel Co. and Earl C. White, Washington Purchasing Agent and Manufacturer.

WESTINGHOUSE FILM SHOWN TO METROPOLITAN CLUB

A regular meeting of the Metropolitan Purchasers Assistants Club was held at the Midston House, New York, on Wednesday, November 12. Feature of the program was a film, entitled "Energy Is Our Business", presented by the Westinghouse Electric Corporation.

To meet your needs . . .

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STAINLESS STEEL



Standard Design



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These life-of-the-system joints are available in either screw-end or socket-welding types to meet your *assembly* needs. They're manufactured for stock in the more popular grades to meet your *process* needs. And they're all precision machined from solid STAINLESS Steel Forgings to meet a *universal* need for the strongest, most accurate and trouble-free fittings money can buy.

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Screw-End and Socket-Weld Types

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FLAT LEATHER BELTING

Combines elasticity, full-friction pulley grip, operating stamina for longer service; is *all-ways* "custom-engineered" to specifications.

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LEATHER PACKINGS

Tannate Packings resist abrasion and wear, will not cold flow, score or abrade. Recommended for a wide range of temperatures, pressures, and mediums.

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UNI-PULL DRIVE

For short center drives, Tannate Leather Belting together with a tension controlling base, provides maximum delivery of power.

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PHILADELPHIA • NEW YORK
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AKRON ASSOCIATION HOLDS UNUSUAL MEETING

Do you have a deep freeze? What makes a fish bite? Did you lose a house?

These are some of the questions on which a forum program was based at the October meeting of the Akron Association. All kinds of answers were forthcoming and a very enjoyable evening was had by all present.

C. G. Allen, A. C. & Y. Railroad acted as chairman of the meeting. Others taking part were W. B. Blessman, Klages Coal & Ice Co.; Leon P. Miller, Enterprise Mfg. Co.; and J. F. Vanni, M. O'Neil Co.; all members of the association. Their talks were all based upon the products made or services rendered by the company the speaker represented. Each also told of some interesting and unusual highlights of his purchasing career.

This educational and informative meeting was very well accepted by the 65 members attending. The attendance represented 57% of the membership.

Mr. W. R. Lantz, Sun Rubber Co., and national director, reported the activities of the 6th district council meeting held in Cleveland October 9.

During the cocktail hour a token was passed from one member to another when asked if he was attending the social period after the regular meeting. The lucky member holding the token at dinner call received a leather billfold. The fortunate member was Donald Lovern. This was one of the many ideas coming out out of a fellowship committee meeting headed by C. R. Culp, Ohio Boxboard Co., to get the newer members better acquainted.

WISCONSIN N.I.G.P. CHAPTER MEETS

At the quarterly meeting of the Wisconsin Chapter of the N.I.G.P., held Oct. 10, following new officers were chosen: president, Andrew Lehrbaummer of the Milwaukee purchasing department; secretary and treasurer, Carl Peters, purchasing agent for the city of West Allis, a suburb of Milwaukee. Lehrbaummer is assistant purchasing agent for the city under Joseph W. Nicholson. The next meeting of the group is to be held on Dec. 5th at Milwaukee. The retiring president is Joseph Duffy, of Kenosha.

The program included talks and discussions on salvage control and disposal of waste and unneeded materials and equipment owned by the city; selection of purchasers, as those interested in buying scrap, etc., are not always reliable, and payment is usually demanded before delivery. All scrap sold by weight is weighed on certified scales to avoid argument. The subject of purchasing tires, tubes and batteries for city cars was also discussed at length.

A problem clinic was held, on best methods of buying materials and equipment for city and county use. Members

(*Please turn to page* 242)

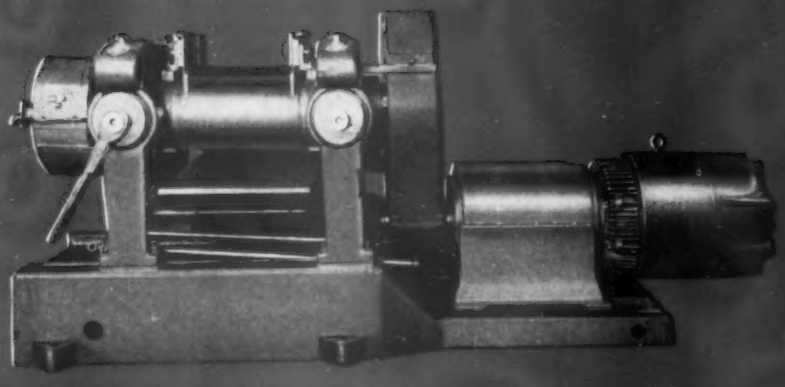


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U. S. INDUSTRIAL GLOVES

UNITED STATES RUBBER COMPANY



When you use a power drive which is an assembly of motors, pulleys and belts, chains and sprockets, gearing, speed reducers, etc., you waste time and money in purchasing, handling and assembling these various units into the final drive.

Master power drives designed as complete units with component parts matching size for size and rating for rating offer you considerable saving in space and money . . . especially in the larger sized units.

best for the BIG ones too

So don't put up with "make-shift" assemblies when you can select from Master's broad line, standard units which easily combine to give you the RIGHT horsepower, the RIGHT shaft speed, the RIGHT features in one compact unit that you can use RIGHT where you want it.

Use the RIGHT power drive to increase the saleability of your motor driven products . . . improve the economy, safety, and productivity of your plant equipment. That's the horsesense way to use horsepower.

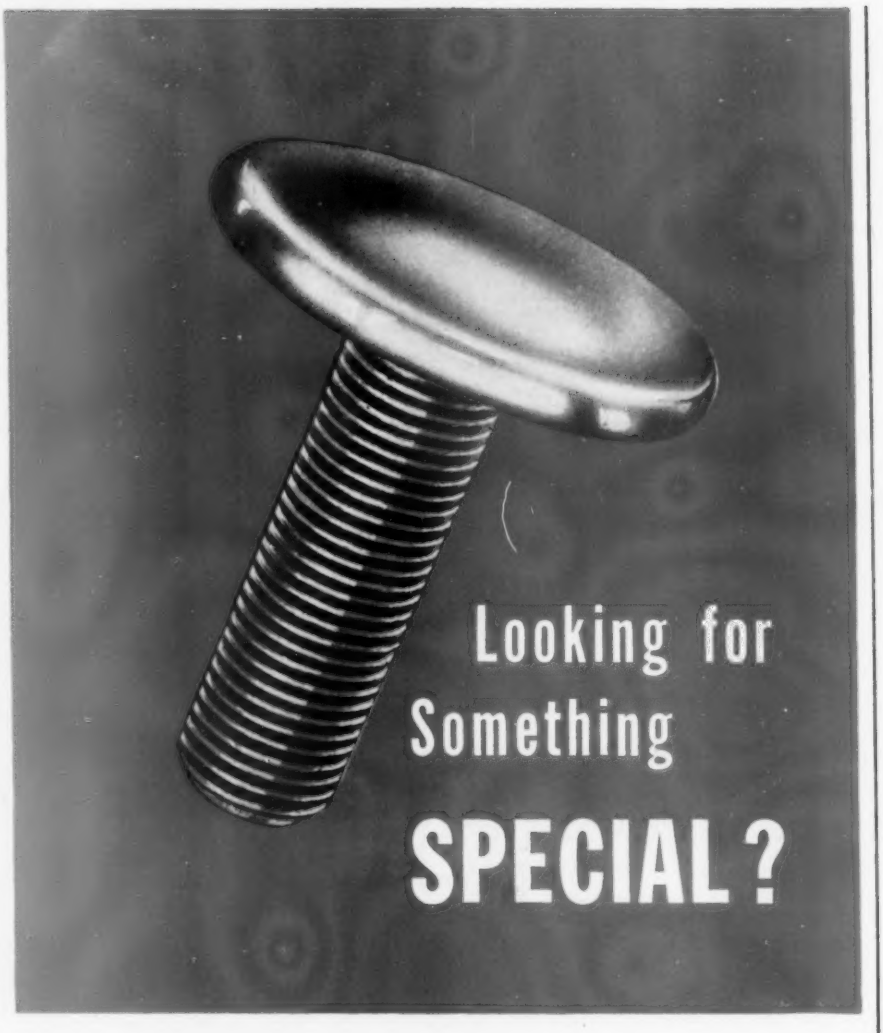
THE MASTER ELECTRIC COMPANY • DAYTON 1, OHIO



MASTER

GEARMOTORS

1/8 TO 125 HORSEPOWER



● You can find the answer to your special fastener problems in a Circle Ⓑ bolt designed and made for your job. We'd like to show you how these special fasteners can add strength to your products while simplifying design and production problems. Follow the lead of well known producers who agree that "the best start to end fastener problems is to call in Buffalo Bolt."

● The NO. 51 Catalog is the simplest, most concise and complete catalog to specify and order fasteners. Let us send it to you.



BUFFALO
BOLT COMPANY
Division of Buffalo-Eclipse Corporation
North Tonawanda, N. Y.
Sales Offices in Principal Cities
PRODUCERS OF CIRCLE Ⓑ PRODUCTS — BOLTS • NUTS • RIVETS AND SPECIAL FASTENERS

(*Continued from page* 238)

were asked to send in questions in advance on procedures, priorities, commodities difficult to get at this time. It was the opinion of many of the members that steel is still hard to get, in certain sizes and quantities, although newspapers have had information that most any kind of steel was now obtainable on short notice. It developed that in certain instances for steel promised for months in the future, the shipments would commence months ahead of schedule. Copper is also an item that is in short supply, except in some sizes and shapes.

After the meeting the members visited the Milwaukee water purification plant on the lake front. Many questions were asked and answered by members as to the kind of chemicals used in filtering the water and the equipment used in the plant.

SALES EXECUTIVE GUEST OF ROCHESTER ASSN.

A regular meeting of the Purchasing Agents Association of Rochester was held on November 19 at the Rochester Club.

Featured speaker was Mr. Larry S. Hamaker, Assistant General Manager of Sales, Republic Steel Corp. His subject was "Steel—Present and Future."

SYRACUSE & CENTRAL N.Y. ASSN. IN PLANT VISIT

More than 60 members of the Purchasing Agents Association of Syracuse and Central New York recently toured the Scintilla Magneto Division, in the group's annual plant visitation.

They were guests of Scintilla management, Bendix Aviation Corporation throughout the all-day outing.

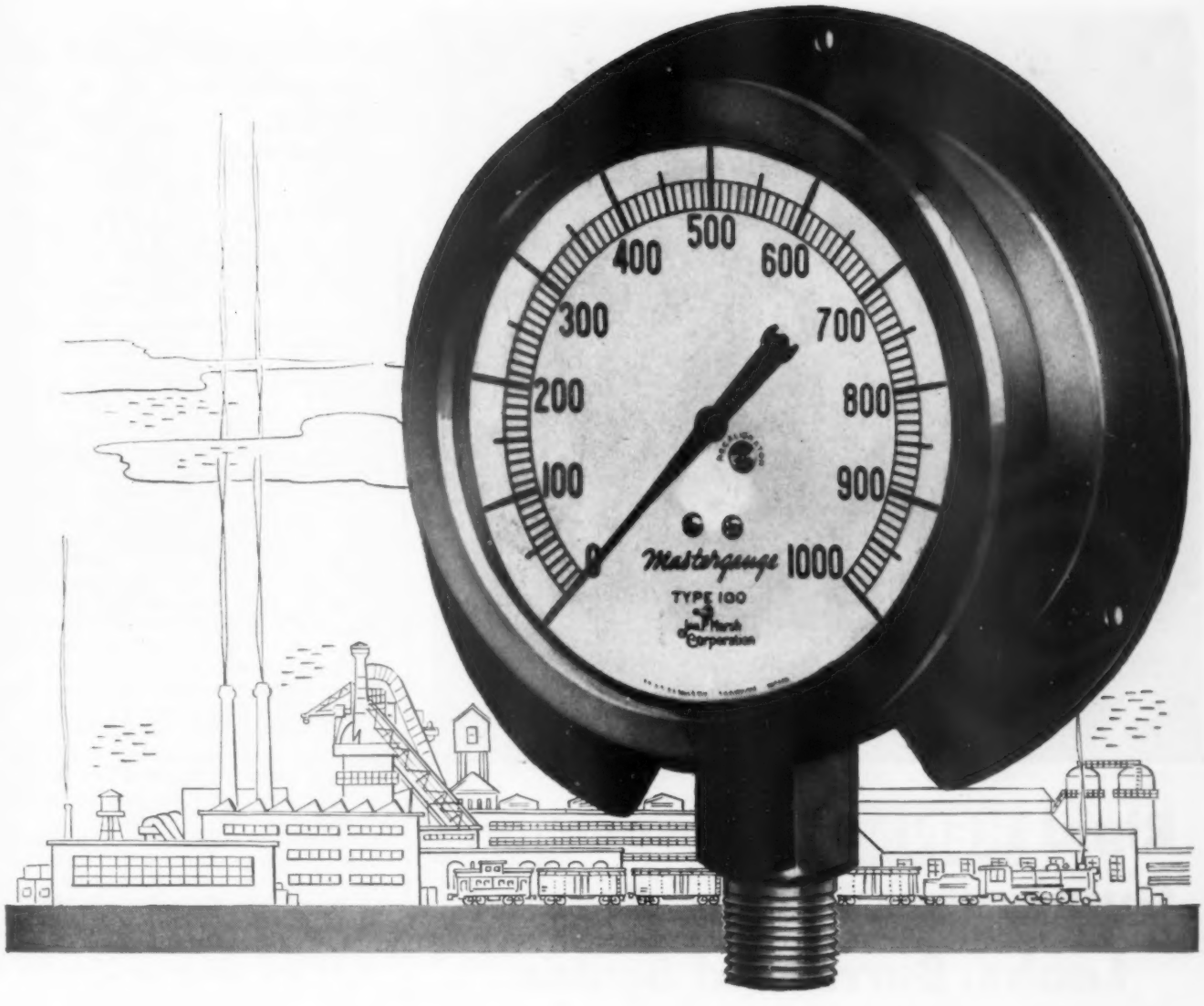
The program began with a three-hour tour and concluded with an evening dinner meeting featuring Tom Fagan, Scintilla public relations director, as guest speaker.

DENVER ASSOCIATION HAS EXECUTIVES' NIGHT

An "Executives' Night" meeting of the Purchasing Agents Association of Denver was held at the Brown Palace Hotel on Thursday, November 13, Guest speaker was H. W. Christensen, president of the National Association of Purchasing Agents.

Among new members of the Denver Association are: E. D. Larimer, Hathaway Instrument Co.; George Thomas, Engineers Limited Pipeline Co.; and Harold Tatum, Marsh Steel Corporation.

SEE CLASSIFIED SECTION
PAGE 352



More than three quarters of a century beyond errors

Emerson said: "Experience is the label men give to their mistakes." That's a tough way to put it, but the fact remains that wise operating men show respect for this thought by searching out the products of manufacturers whose mistakes are largely *behind* them.

Ours are. While we frankly admit that we have made mistakes, we feel that we can conservatively and modestly say we are at least three quarters of a century beyond the mistake stage.

If you want further proof of this, look at the record of Marsh Gauges and Dial Thermometers. It is a record that has made Marsh instruments "The Standard of Accuracy" throughout industry.

Because Marsh instruments are so respected, they have been given top preference by the leading manufacturers of equipment requiring pressure gauges and dial thermometers. Marsh is the gauge on foremost makes of boilers, pumps, compressors and other products requiring pressure gauges.

Insist on Marsh gauges and thermometers throughout your plant. There is a type for every service.

The Gauge with the "RECALIBRATOR"

Not only the quickest way to correct a gauge; also the best. Best because it corrects for distortion of the bourdon tube — actually does *recalibrate* the gauge.



MARSH GAUGES

Marsh Instrument Co., *Sales affiliate of Jas. P. Marsh Corporation*
Dept. G, Skokie, Ill. • *Export Dept., 115 E. 44th St., New York, N. Y.*



Rigid KENNEDY Inspection Guarantees Fittings Free of Leaks, Burrs and Scales



KENNEDY MALLEABLE-IRON screwed fittings are made with tough, close-grained iron, tested to 43,000 psi. Carefully controlled annealing prevents splitting or cracking under almost any distortion forces. Uniform hot-dip galvanizing assures a heavy coating that will not chip or flake. Precision machining provides exact alignment . . . speeds installation time.



KENNEDY CAST-IRON screwed and flanged fittings, are made with tough, close-grained metal *more than* 50% *stronger* than ordinary gray iron. Precision threading and accurately machined flanges help you get strong, tight joints easily. The complete Kennedy line also includes cast-iron sprinkler and drainage fittings, and cast-iron flanges.



KENNEDY BRONZE fittings with tensile strength of 34,000 psi are individually tested to 100 lbs. air pressure under water to insure freedom from leaks. Available rough or polished in all standard types and sizes.

WRITE FOR BULLETIN 104

Est. 1877

THE **KENNEDY**
VALVE MFG. CO. • ELMIRA, N.Y.

VALVES • PIPE FITTINGS • FIRE HYDRANTS

ANNOUNCE BOOKLETS ON PRACTICAL ASPECTS OF GRINDING

Authoritative information on many practical and important aspects of grinding is available in booklet form without cost from the Grinding Wheel Institute, 2130 Keith Building Cleveland, as follows:

1. *Grinding Wheels: Standard Shapes and Sizes of Grinding Wheels.* (Simplified Practice Recommendation R45-47, National Bureau of Standards.) Lists standard grinding wheel shape types, with detailed dimensions. All wheels listed also are classified according to basic uses.

2. *American Standard Safety Code for the Use, Care and Protection of Abrasive Wheels.* (American Standards Association.) ASA B7.1-1947. The scope of this publication includes rules and specifications for protection hoods, flanges, chucks, and revolving cup guards, and rules for the proper storage, handling and mounting of wheels. It gives minimum arbor sizes and maximum safe operating speeds of grinding wheels.

3. *Specifications of Segments used in Chucks.* Contains diagrammatic sketches of chucks, showing the holding mechanism as well as complete dimensions for all standard shapes listed.

4. *Mounted Wheels and Points: Safe and Efficient Operation, Critical Speeds.* Lists all standard mounted wheel shapes, giving general rules for safe operation together with tables of critical speeds.

5. *Disc Grinding: Safe Rules and Methods.* The purpose of this booklet is to describe the special features of disc grinding, and to illustrate recommended practice with respect to mounting procedures and the use of safety techniques.

6. *Handling, Storage and Inspection of Grinding Wheels; Safe Rules and Methods.* Presents proven methods and rules to follow for the safe storage, handling and inspection of grinding wheels.

7. *Mounting Techniques for Wheel Sleeves on Cylindrical Grinding Machines.* Deals exclusively with the elimination of wheel breakages on cylindrical grinding machines by recommending the specific amount of "wrench pull" for the operator to use when mounting wheels on each of the more common types of cylindrical grinding machines.

8. *Safe Speeds for Grinding Wheels.* This booklet, based on the rules in the ASA Safety Code B7.1-1947, discusses established rules governing the proper speeds to be used for safe grinding wheel operations, touching on wheel strength, peripheral speeds and the overall efficiency of low speeds in respect to reduced wheel breakages.

9. *Portable Grinding Machines: Safe and Efficient Operation.* The purpose of this booklet is to outline the conditions that are likely to cause trouble and to provide information regarding the safe use and maintenance of portable grinding machines for both the workman and the supervisor.

10. *High Speed Grinding Machines: Heavy Duty Maintenance of Swing*

(*Please turn to page* 246)



FUNDAMENTALS OF CONTAINERS IN PACKAGING

Type No. 6—METAL END SCREW CAP CANS

These cans are generally classified as mailing containers. They are made of high test chipboard, spirally wound to relatively heavy wall thickness . . . a minimum of 1/8" for small diameters and slightly under 1/4" for cans with diameters of 3 1/2" or more. This provides more than adequate wall strength for safety of the product in transit. Because of the rigid heavy wall, these containers are sealed on the bottom with a special knurled crimped metal end ensuring an exceptionally tight closure. The top is provided with a metal threaded ring crimped in the same manner. A metal threaded cap is shipped separately from the can. All metal ends are stamped from bright tin plate.

The Metal End Screw Cap Container, (an economical mailing case), meets all postal regulations. Because of its heavy wall construction and removable cover it becomes an ideal package for repeated use. Ideal for the packaging of fishing rods, toys, welding rods, repair kits and kitchen utensils. Safe and compact storage of nuts, bolts, washers and small parts; safe and compact mailing of glass jars, bottles, clinical specimens, small tools and instruments are but a few of the many uses of the screw cap can. Protected mailing and storage of charts, maps and blue prints are added applications.

SIZES AVAILABLE . . . Screw Cap Cans are made in diameters from 3/4" to 4 1/2" inside diameters, and in lengths to meet your requirements.

★ ★ ★

WHY PAY MORE? FOR THE BEST . . . CALL CLEVELAND!

VARIATIONS . . . As a merchandising package, screw cap cans may be provided with special lining materials which act as protective barriers for hygroscopic or oil base materials. Popular liners are paraffin, parchment, glassine, foil, asphalt duplex kraft, cellulose acetate and government specification anti-corrosive papers, and VPI liners now available for industrial use. Metal ends may be embossed for identifying or advertising purposes. Added safety in packaging heavy instruments or parts is accomplished by use of a pressed-on threaded type bottom. This metal end is knurled and crimped in the same manner as the standard bottom and when combined with the crimped threaded ring and metal top provides the maximum of protection.

LABELS . . . This container may be labeled to customer specifications or within size limitations may be direct printed in a single color. Preprinted wrap-around or decorative paper may be spirally wound on the outer surface of the can at a nominal cost.

SHIPPING . . . All Cleveland Containers are packed and shipped in uniform high test cartons which ensure proper delivery, ease of handling and economy of storage space.

★ ★ ★

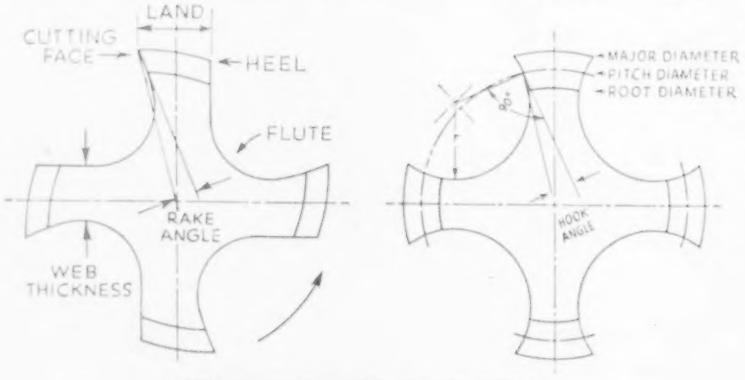
The CLEVELAND CONTAINER Co.
6201 BARBERTON AVE. CLEVELAND 2, OHIO
• All-Fibre Cans • Combination Metal and Paper Cans
• Spirally Wound Tubes and Cores for all Purposes
PLANTS AND SALES OFFICES: Cleveland, Detroit, Chicago, Plymouth, Wisc., Jamesburg, N. J., Ogdensburg, N. Y. • ABRASIVE DIVISION at Cleveland
SALES OFFICES: Grand Central Terminal Bldg., New York City; Washington Gas Light Bldg., Washington, D. C., West Hartford, Conn.; Rochester, N. Y.
Cleveland Container Canada, Ltd., Prescott, Ontario • Offices in Toronto and Montreal



Write for additional copies of this message.

USE THE RIGHT TAP

(HOW TO DO MORE TAPPING WITH FEWER TAPS)



IMPORTANCE OF FLUTE FORM

THE FLUTE IS ONE OF THE MOST IMPORTANT ELEMENTS OF A TAP BECAUSE EACH THREAD IN THE CHAMFERED SECTION FORMS A CUTTING EDGE WHERE IT MEETS THE FLUTE. ALSO, THE FLUTE IS USUALLY THE ONLY SPACE FOR CHIP REMOVAL. IT IS OF PRIMARY IMPORTANCE THAT THE FLUTE SURFACE BE HIGHLY POLISHED AND THAT ITS SIDE HAVE THE RIGHT RAKE ANGLE IF STRAIGHT, OR HOOK ANGLE IF CURVED. TAPS SHOULD BE SHARPENED BEFORE THEY ARE DULL. GREAT CARE SHOULD BE TAKEN TO NOT OVERHEAT THEM IN GRINDING. THE GENERAL SHARPENING RULE IS: LITTLE OR NO HOOK FOR CAST IRON, CAST BRASS OR OTHER CRUMBLY MATERIALS BUT STRONG HOOK ANGLES OF 15° TO 20° FOR TOUGH STRINGY MATERIAL LIKE ALUMINUM, COPPER, ETC.

TAPS CHAMFERED FREE-HAND ARE SURE TO BE UNEVEN OR ECCENTRIC AND IN USE THE CUTTING LOAD WILL BE CONCENTRATED. SUCH TAPS WILL BREAK IF SMALL. A LARGER, STRONGER TAP MAY NOT BREAK BUT WILL DULL QUICKLY AND IN A RIGID CHUCK WILL PRODUCE A BELL-MOUTH HOLE OR AN ECCENTRIC THREAD.

SHARPENING ON A GOOD CHAMFERING MACHINE IS ESSENTIAL FOR REAL TAPPING ECONOMY.

THREAD MORE HOLES WITH FEWER TAPS INSIST ON...

HY-PRO TAPS



HY-PRO TOOL COMPANY

NEW BEDFORD, MASS., U. S. A.

(*Continued from page* 244)

Frame and Floor Stand Machines; Large Hold, Organic Bonded Wheels. Outlines in general terms the conditions largely responsible for trouble if not corrected, and supplies information needed to facilitate proper inspection and maintenance of that portion of the equipment that affects the safety of the wheel.

ON-THE-JOB INSULATION FOR COLD LINE FITTINGS

A new material called Plasticork, that allows on-the-job fabrication of insulating fittings for cold lines, has been developed by the Building Materials Division of the Armstrong Cork Company.



Packing Plasticork into voids of fitting at beginning of cold line insulation

The new material is a tacky, moldable granulated cork-and-rubber composition, furnished in bulk form, that may entirely eliminate the use of molded fitted covers in some applications and supplement the use of fitted covers in other uses.

Plasticork promotes flexibility and speed since it allows the workmen actually to mold a fitting cover to the proper size and thickness on the job by shaping the material by hand to the fitting being insulated.



Workman applies friction tape over the Plasticork

Plasticork can be used in any application where regular cork fitting covers can be applied. It is built up on the job in the same thickness as molded fitting covers or the cork covering on adjacent piping. It is non-corrosive on contact with all ordinarily used metals.

(*Please turn to page* 248)

FLAT SPRING STEEL



You can get it now! . . . and we believe it's the best spring steel we've ever made

OUR NEW specialty spring steel plant is in full swing. Equipped with today's most modern, precision machines, we believe we're producing flat spring steel that gives more for your money than ever before.

This new spring steel is tops in uniformity. It saves you preparation time . . . cuts down machine stoppages . . . gives you the greatest number of perfect parts from every foot and pound of steel.

With our greatly increased capacity we can make prompt deliveries on flat spring steel. And if you need high carbon round or shaped wire, ask what we can do. John A. Roebling's Sons Company, Trenton 2, N. J.

ROEBLING

ATLANTA, 934 AVON AVE • BOSTON, 51 SLEEPER ST • CHICAGO, 5525 W. ROOSEVELT RD • CINCINNATI, 3253 FREDONIA AVE • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST • DETROIT, 915 FISHER BLDG • HOUSTON, 6216 NAVIGATION BLVD • LOS ANGELES, 5340 E. HARBOR ST • NEW YORK, 19 RECTOR ST • ODESSA, TEXAS, 1920 E. 2ND ST • PHILADELPHIA, 230 VINE ST • SAN FRANCISCO, 1740 17TH ST • SEATTLE, 900 1ST AVE S. • TULSA, 321 N. CHEYENNE ST • EXPORT SALES OFFICE, TRENTON 2, N. J.

A FULLER Service
when it Comes to Cleaning



Wrap up *all* your cleaning problems in one package and hand them over to your Fuller Industrial Representative. He is a cleaning expert who brings you technical assistance on what's best for your *every* cleaning need . . . for floors, walls, woodwork, windows, furniture or equipment. And he is backed by a modern research laboratory constantly checking, testing and improving to make sure that you get the finest brushes, mops, waxes, polishes and cleaning compounds that money can buy. To ease *your* maintenance burden, call your nearest Fuller Industrial Representative, or write.

INDUSTRIAL Fuller BRUSH CO. DIVISION

At home... in business, too

THE FULLER BRUSH COMPANY • INDUSTRIAL DIVISION • 3554 MAIN STREET • HARTFORD 2, CONN.
Fullergript, Wet and Dry Mops, Brooms, Floor and Special Brushes.

(*Continued from page* 246)

It maintains its plastic and tacky qualities indefinitely so that it can be held in stock for years without losing its moldable characteristics. It also can be removed from a fitting and reused without loss of insulating efficiency or workability.

One of the advantages of the new material is that it eliminates the difficult and time-consuming task of cutting standard molded covers to fit in close quarters or over nested fittings. In addition, it eliminates the delay that often results from waiting for special fittings to be made and shipped to the job site.

Plasticork composition contains 80 per cent cork particles by volume so that it results in fitting covers whose overall heat loss is comparable to cork fitting covers.

The new material is packed in cardboard containers containing 5, 10, 20, and 40 pounds.

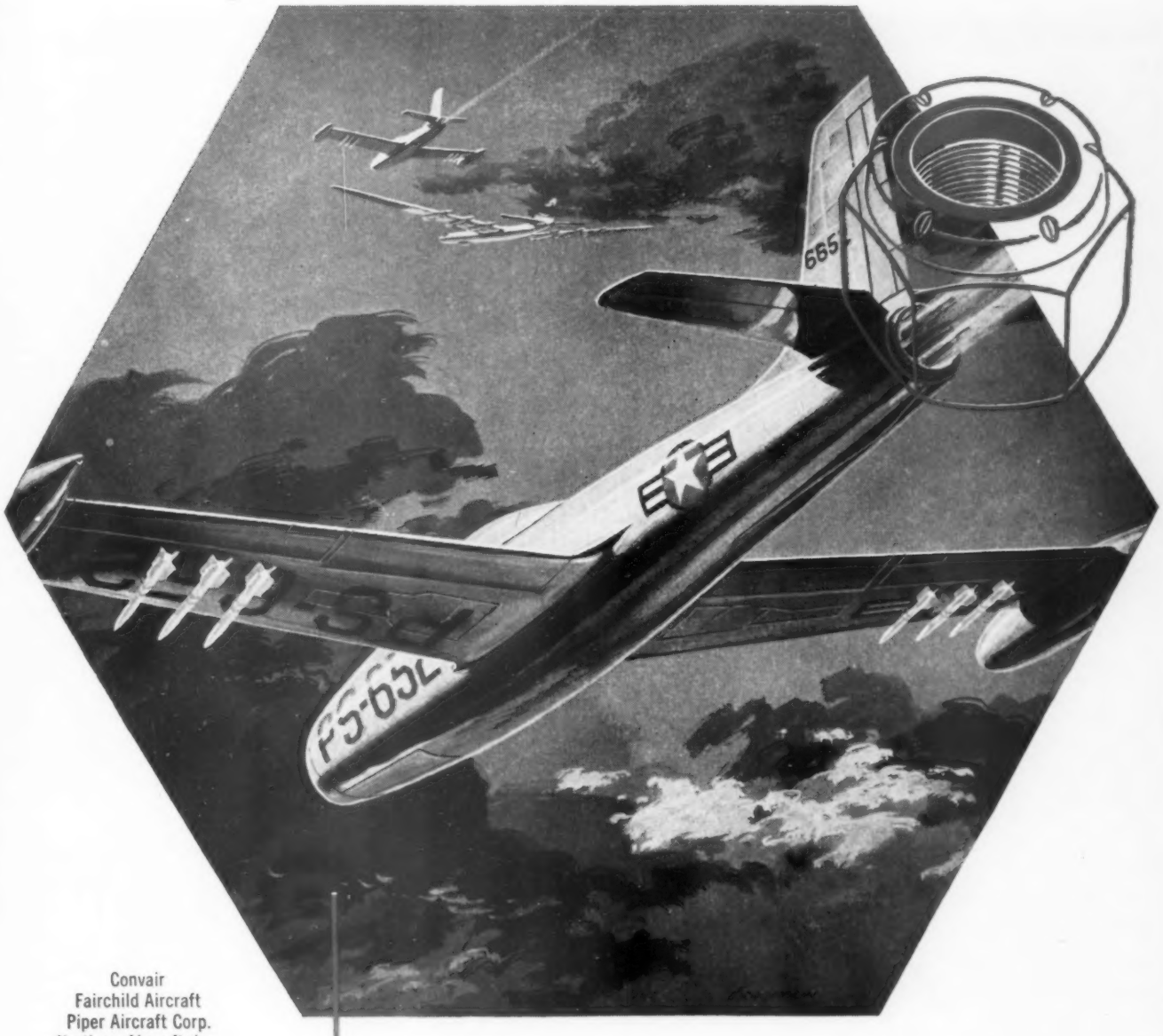
USE PHENOLIC RESINS FOR LIGHTWEIGHT PATTERNS



Illustration shows matching halves of foundry pattern for an eight by six inch bell and spigot pipe reducer made of low cost fillers and phenolic resins, by process developed by the Glamorgan Pipe & Foundry Co., Lynchburg, Va., for making lightweight foundry patterns and core boxes for casting metal in sand. These halves consist of a ⅛-inch to ½-inch thick outer shell compounded of special plaster and Bakelite phenolic C-8 resin, to ½ inch thick, followed by ¾-inch of vermiculite C-8 resin filler and a rough core of low cost wood to complete the half pattern. The smooth, dense surface prevents sand from adhering to the pattern, assuring finish for the final metal casting and shortens time spent in finishing operations. Cores for these castings and match plates are made by the usual foundry practice. The process was exhibited at the National Metal show in Detroit.

GULF ANNOUNCES DISCOVERY OF RICH SULPHUR DEPOSIT

Announcement was recently made of discovery of the fourth rich sulphur deposit in its Mexican properties by the Gulf Sulphur Corporation. Explorations indicate that these properties contain some of the world's richest elemental sulphur producible from brimstone by the Frasch process. The company has already cored 52′ of rich sulphur formation in its new well. The discovery will add thousands of tons of Frasch producible sulphur to its present reserves of more than 600,000 long tons.



Convair
Fairchild Aircraft
Piper Aircraft Corp.
Northrop Aircraft, Inc.
Chance Vought Aircraft
Bell Aircraft Corporation
Cessna Aircraft Company
Boeing Airplane Company
Beech Aircraft Corporation
The Glenn L. Martin Company
Chase Aircraft Company, Inc.
North American Aviation, Inc.
Republic Aviation Corporation
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Douglas Aircraft Company, Inc.
McDonnell Aircraft Corporation
Grumman Aircraft Engineering Corp.

Elastic Stop Nuts speed assembly and provide vibration-proof fastenings for every American aircraft now being built.

ESNA®
TRADE MARK

ELASTIC STOP NUT CORPORATION OF AMERICA

Dept. N29-1215, 2330 Vauxhall Rd., Union, N. J.


HIGH TENSILE


ANCHOR


HIGH TEMPERATURE


SPLINE


CLINCH


GANG CHANNEL


NYLON CAP

Only ESNA manufactures a complete line of all types and sizes of self-locking fasteners.



... out of this came Aviation

... an industry with vision

An industry that by its own
imaginative design created the need
for manufacturing with the
same intensity of imagination and vision.
Indiana Gear is such a
manufacturer—a company of craftsmen
dedicated to producing the finest
in precision parts to back up
the design intelligence of this great
technologically-minded country.



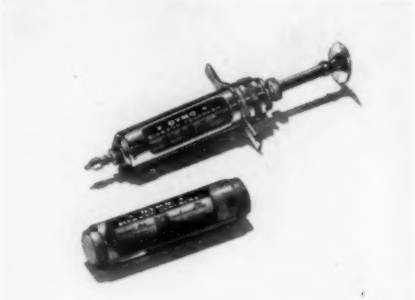
This 450 H.P. main gear box of approximately 12 to 1 reduction for the Sikorsky S-51 Helicopter was fabricated in its entirety by I.G.W.'s skilled craftsmen.

INDIANA GEAR

INDIANA GEAR WORKS, INC. • INDIANAPOLIS 7, INDIANA

ADOPT PLASTIC CARTRIDGE FOR DIAMOND ABRASIVE

After more than a year of experimental and development work, the Abrasives Division of the Elgin National Watch Company has announced a new plastic cartridge to replace cartridges



Diamond applicator gun and cartridge

formerly used for packing diamond abrasive. The cartridge is a precision tube, sealed at both ends, designed for use with applicator guns. With the old glass cartride there was danger of introducing minute glass chips to the abrasive when the cartridge was opened and inserted in the applicator. These chips in turn caused scratches during polishing operations. The plastic cartridge will not break or crack if accidentally dropped.

NEW CATALOG ON FLEXIBLE COUPLINGS FOR POWER TRANSMISSION

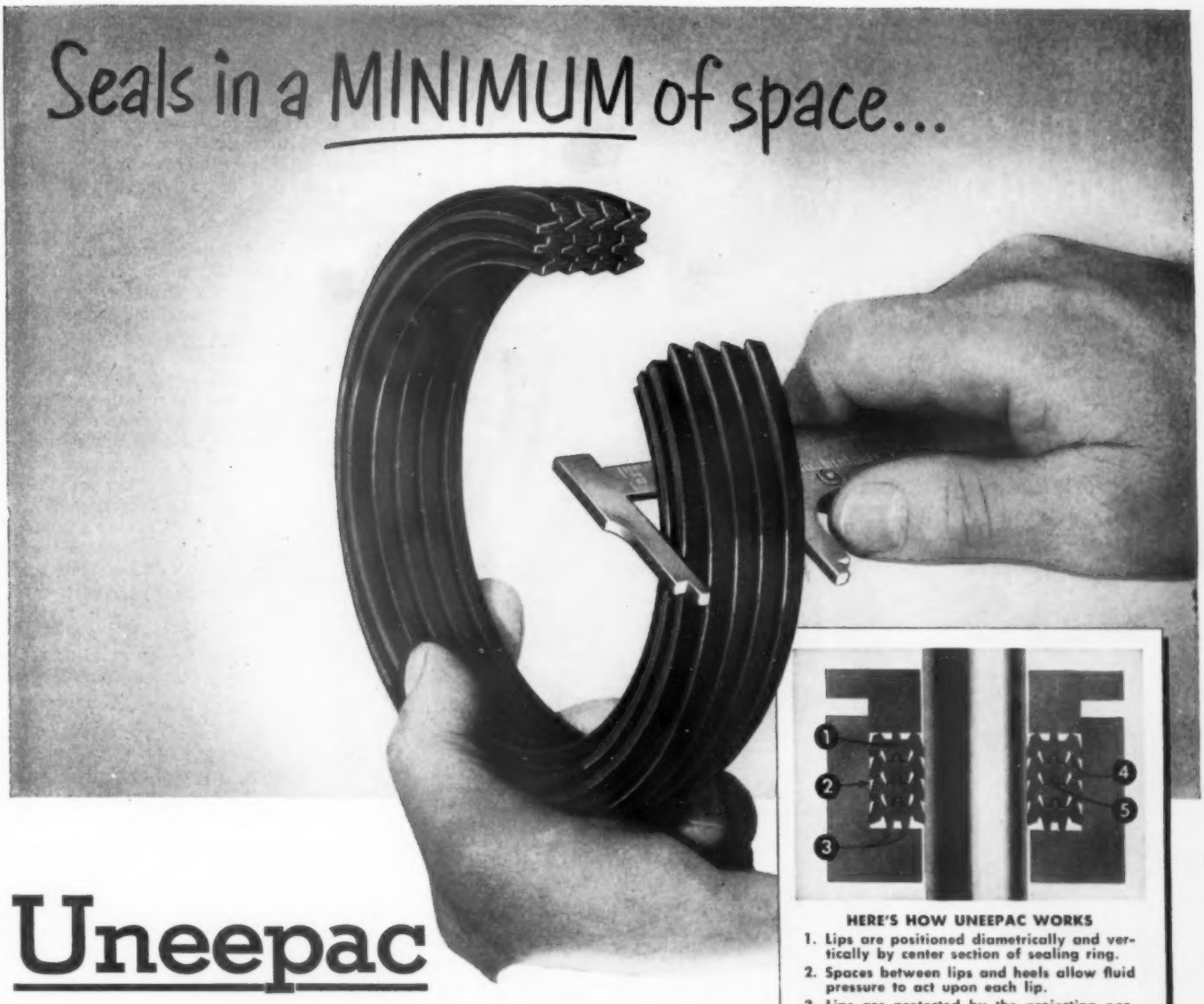
All metal flexible couplings for power transmission are the subject of new catalog No. 51, 78 pages, 9" x 11" binder, just published by the Thomas Flexible Coupling Company, Warren, Pa. Couplings are grouped and indexed to facilitate quick reference. Keyway data, standards for straight and tapered bores as well as ordering instructions are included in each group. Standard couplings are shown in individual sections of the catalog and are followed by a special section showing many couplings designed for specific purposes with photos of typical installations. A wide range of horsepower and speeds are covered from small motor couplings to large industrial applications and main drives on diesel locomotives and ships.

ECONOMICAL COLOR ILLUSTRATIONS BASED ON TV TECHNIQUES

A major increase in the use of full-color illustrations in all types of publications will soon become economically practicable, according to progress report on an all-electronic instrument promising revolutionary speed and accuracy in a vital phase of the color reproduction process. The report, presented by John S. Odell, RCA Victor Division, Camden, N. J., disclosed that RCA has designed

(*Please turn to page* 252)

Seals in a MINIMUM of space...



HERE'S HOW UNEEPAC WORKS

1. Lips are positioned diametrically and vertically by center section of sealing ring.
2. Spaces between lips and heels allow fluid pressure to act upon each lip.
3. Lips are protected by the projecting portion of center section against damage by excessive gland pressure.
4. Lips are supported to prevent collapse or distortion by excessive fluid pressure.
5. Each ring correctly centers itself on the preceding ring so that they align vertically and nest perfectly.

Uneepac

...the new Johns-Manville automatic ring packing

EQUIPMENT DESIGNERS are finding that this newest Johns-Manville packing development enables them to hold stuffing-box sizes to a minimum . . . thereby save both space and machining.

This ability of Uneepac to provide high sealing efficiency in minimum packing depth results from the fact that each ring is a complete self-contained packing unit. Uneepac is designed so that the center section of each ring positions the lips and protects them from excessive gland pressure. Header and follower rings are therefore seldom required.

In addition, Uneepac offers other advantages that are important both to the designer and the user:

SIMPLIFIED INSTALLATION—Each Uneepac ring centers itself on the preceding ring so that the entire set is aligned vertically and nested perfectly. This feature practically insures trouble-free installation.

MORE EFFICIENT SEALING—Because it is designed so that each lip is always exposed to fluid pressure, Uneepac has excellent pressure sensitivity . . . is instantly responsive to fluid pressure changes.

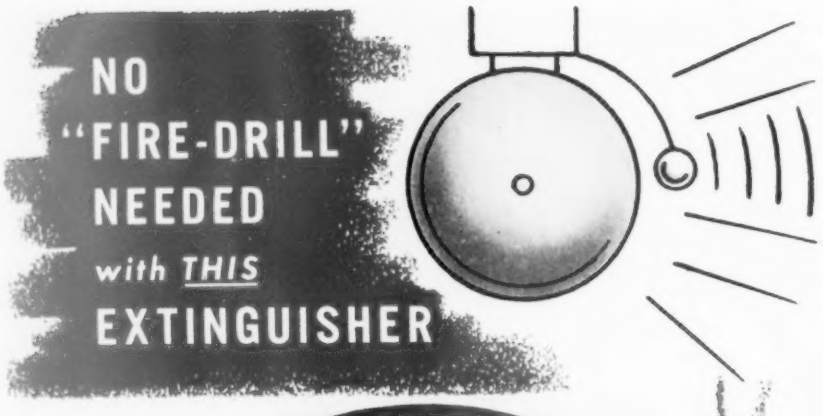
REDUCED FRICTION AND WEAR—The operation of this new automatic packing is completely independent of gland pressure. This reduces friction to a minimum—saves wear on both rod and packing—and contributes to longer life with corresponding reductions in down time for replacements.

Uneepac is available in sizes from ⅝" inside diameter to 63" outside diameter. For complete information, write Johns-Manville, Box 60, N. Y. 16, N. Y.

JOHNS-MANVILLE JM PRODUCTS

Johns-Manville PACKINGS & GASKETS

NO "FIRE-DRILL" NEEDED with THIS EXTINGUISHER





It's a Randolph!

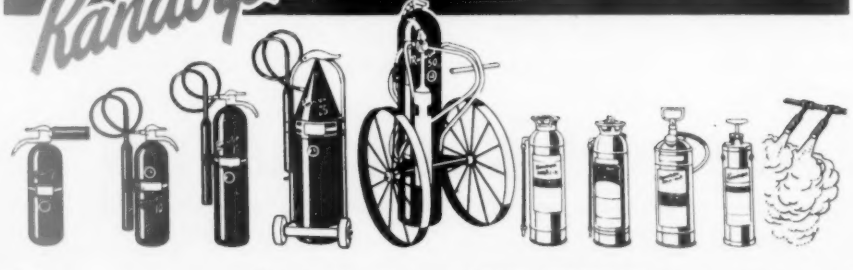
One glance tells you just how the Randolph operates—no instructions, no explanations necessary! That's why *anybody* can get a Randolph into action fast! No valves to turn, no nozzles to adjust; just point and press your thumb and Randolph's cloud of snowy CO_2 kills fire instantly!

Non-damaging Randolph CO_2 evaporates without a trace, is non-toxic, won't conduct electricity, deteriorate or freeze. And *all* Randolph Models are Underwriters' Approved.

A COMPLETE LINE OF EXTINGUISHERS AND AUTOMATIC SYSTEMS

Learn how Randolph gives your plant panic-proof, split-second protection against flammable liquid, electrical and other hard-to-handle fires! Write Randolph Laboratories, Inc., 1 E. Kinzie St., Chicago 11, Illinois.

Randolph SIMPLIFIED FIRE EQUIPMENT



(*Continued from page 250*)

and nearly finished construction of semi-final models of the instrument, which will be the basis for commercial equipment expected to go into production in the latter part of next year.

The instrument, based on work by scientists of the Interchemical Corporation, provides for rapid, automatic, dot-by-dot correction of color separation negatives. Mr. Odell revealed that application of television techniques has greatly facilitated the operation of the system. Because of a change from mechanical to electronic scanning it has been possible to reduce from 70 minutes to about 10 minutes the time required to scan an 11 x 14-inch plate.

Terming the new instrument the "electronic equivalent of the competent color etcher or finisher and a proof press, with the advantages of greater speed and the ability to correct dot by dot", Mr. Odell said it will permit "economy of an order which has not been seen before. The equipment will make possible very substantial savings of both time and money. It will permit a big step toward production-line methods in the graphic arts industry, and its use should accelerate even more the current increase in the use of color in industry."

* * *

TEST PLASTIC PIPE FOR UNDERGROUND CONDUITS



In a test project undertaken by Kingsport Utilities, Kingsport, Tenn., in cooperation with the Tennessee Eastman Company, trial installation has been made in a Kingsport city block where the power company has put in a 5-light "White Way". Tenite plastic pipe in 20-foot lengths was used instead of the regular 5-foot conduit sections made from a compound of asbestos and cement. Because of the flexibility of the plastic pipe, the trenches did not have to have exact straight-edge sides and bases required for the usual rigid type of conduit. Joining was a speedy job,—all that was necessary was to brush on some thinner to soften the section ends, follow with the special cement, and slip together.

It took a two-man crew only 20 minutes to lay 247 of the 1100 feet of pipe used in the project. By comparison, the Utilities said "It would have taken four hours had the regular rigid conduit been laid."

Steel Wheels put in this giant ore bridge



Traveling ore bridge, built by Heyl & Patterson for Weirton Steel, stockpiling iron ore for blast furnaces.



One of four truck mounted vertical bridge "legs" with Standard Steel wheels.

Standard Steel Works Division

Burnham, Pennsylvania

-HAMILTON

Personalities IN THE NEWS



James M. Mead, recently appointed first assistant to the Vice President in Charge of Purchasing, Procurement and Merchandising, has been elected Assistant



James M. Mead

Vice President of Joseph T. Ryerson & Son, Inc. Mr. Mead has spent his entire business life with Ryerson, beginning at New York in 1919, and has held a wide variety of important posts with the organization.

Andrew McNeill has been appointed Purchasing Agent for the Baton Rouge, La., plant of the Naugatuck Chemical Division, United States Rubber Company. Mr. McNeill, formerly Purchasing Agent at the Painesville, O., plant, has been with the division since 1947. He has a degree in chemical engineering from Northwestern University.

Succeeding him as Purchasing Agent at Painesville is John Brady, formerly a Senior Buyer at the Naugatuck, Conn. plant. Mr. Brady, who has a degree in chemical engineering from the University of South Carolina, joined the division in 1950.

Charles L. Sager, Secretary and Purchasing Agent of the Crosby Company, Buffalo, N. Y., was honored with a luncheon and gift recently on the occasion of his 50th anniversary with the company. Mr. Sager started with Crosby as a shipping clerk at the time when the present president, John M. Smith, was an office boy. He has been General Purchasing Agent since 1925 and Secretary since 1944. The luncheon in his honor was arranged by the officers and directors of the company.

John W. Josephson has been appointed Manager of Purchases for the G. Krueger Brewing Company, Newark, N. J. He will be in charge of all purchases for the home office in Newark and subsidiaries in Hartford, Conn.; Wilmington, Del.; Boston, Mass.; and Trenton, Camden, Dover and Neptune City in New Jersey.

Leo R. Manis has been appointed by Kaiser Engineers Division of the Henry J. Kaiser Company as Procurement Manager of its construction project for the Atomic Energy Commission's Hanford plutonium works. In his new position, Mr. Manis will direct the purchase of nearly $60,000,000 worth of equipment and construction materials from the project's headquarters in Richland, Wis., from where all procurement will be handled.



Leo R. Manis

Mr. Manis goes to the AEC project from New Orleans, where he was in charge of procurement, expediting and warehousing of all construction materials for the $150,000,0000 aluminum reduction plant now being built at nearby Chalmette by Kaiser Engineers. Previous to that, he had been in the company's home office in Oakland, Calif., where he was responsible for purchasing machinery and equipment for various Kaiser Engineer's projects.

Verl E. McCoy, Chief Purchasing Officer of the Milwaukee Railroad, Chicago, Ill., has been named Director of the Railroad Equipment Division, National Production Authority, Department of Commerce, Washington, D. C.

E. F. Gormsen, Director of Purchases for the Chevrolet Motor Division, Flint, Mich., has announced the following appointments:

E. J. Furbacher, formerly Purchasing Agent at Chevrolet Gear & Axle plant, Detroit, Mich., as Purchasing Agent, Chevrolet Central Office;

Milton J. Schemm, formerly Assistant Purchasing Agent in the Central Office, as Purchasing Agent at Gear & Axle;

George B. Ford as Assistant Purchasing Agent at Central Office;

Kenneth B. Daniels, formerly Purchasing Agent at Chevrolet-Toledo, as Purchasing Agent at Chevrolet-Saginaw Grey Iron Foundry;

Robert A. Kraft, formerly a divisional product buyer at Central Office, as Purchasing Agent at Chevrolet-Toledo.

Roy T. Scott has been appointed City Purchasing Agent of Newport News, Va.

Joseph F. Parsons has been appointed Manager of Purchases for Monsanto Chemical Company's Organic Chemicals Division, St. Louis, Mo. Prior to his connection with purchasing and traffic, he served as production manager at the John F. Queeny plant. Mr. Parsons is a past president of the St. Louis Association, and director to the national.

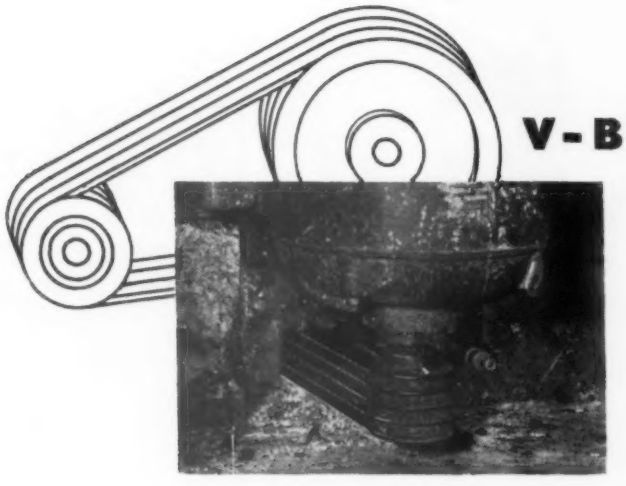
E. W. Hall has been named Purchasing Agent for Aluminum Goods Manufacturing Company, Manitowoc, Wis. He



E. W. Hall

succeeds the late Robert X. Stiefvater. Mr. Hall was formerly head of the company's stock department. He started with Aluminum Goods in 1915 in the order department.

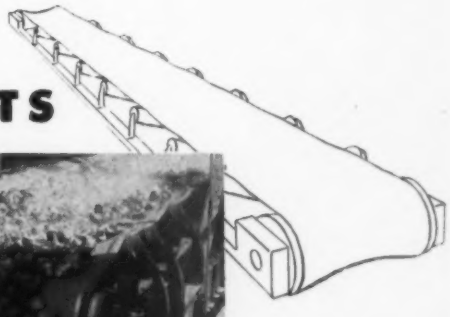
(*Please turn to page* 260)



V-BELTS

The purchasing agent of a textile finishing plant, working with his chief engineer, discovered that V-belt used for driving fans in a gas-fired drying oven lasted only 2 weeks. They installed neoprene V-belts . . . *reduced purchases by 90%!*

Neoprene is durable . . . stands up where other materials fail.

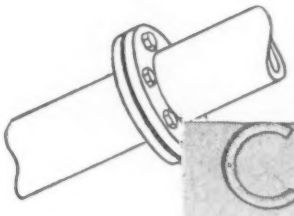


CONVEYOR BELTS

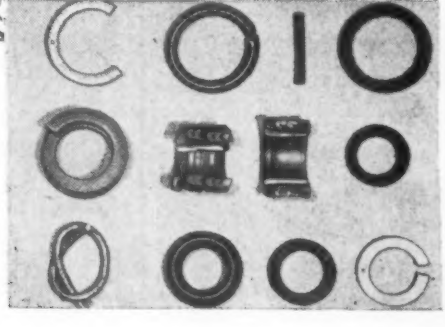
A neoprene-covered conveyor belt was purchased by a large gas company to carry hot, oil-treated coke. Ordinary belts had failed in a few months but the neoprene belt is in good condition after 5 years of *continuous* operation.

Neoprene is tough . . . withstands heat, oil, constant abrasion.





GASKETS AND PACKING

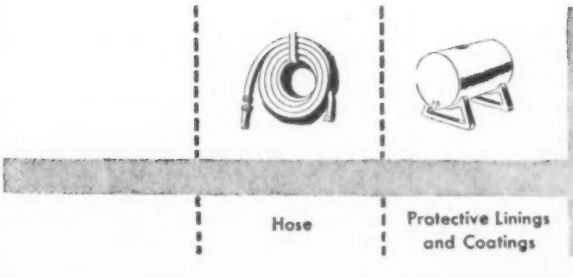


Service records kept in an eastern chemical plant on hydraulic press gaskets revealed that they required replacement every 10-20 days . . . leaked oil at the rate of 5 gallons every week. Neoprene gaskets were ordered and have served efficiently for *over 2 years.*

Neoprene is resilient . . . resists aging and permanent distortion.



FREE! THE NEOPRENE NOTEBOOK. Each issue contains interesting stories . . . unusual applications and products of neoprene. Write: E. I. du Pont de Nemours & Co. (Inc.), Rubber Chemicals Division S-12, Wilmington 98, Delaware.



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The rubber made by Du Pont since 1932

DU PONT 150th Anniversary

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NOW 5 PLANTS

on industry's doorstep to expedite your needs for quality tubular and split rivets, rivet-setting machines and special cold-headed fasteners. Write for an important new brochure, "THE MILFORD METHOD", describing Milford's latest contribution to industrial progress . . . a complete service integrating fastener research, design and engineering with manufacturers' production.



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NEW ENG. DIVISION
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ILLINOIS DIVISION
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PENN DIVISION
36 Platt St. Hatboro, Pa.

the MILFORD RIVET & MACHINE CO.
EST. 1919

the name to rivet in your memory for fasteners

Herbert L. Smith has been promoted to Director of Purchases for Columbia Pictures, New York, N. Y. He was formerly Assistant Director of Purchases, and is succeeded in that post by Fred Izzo. Max Seligman, formerly Director of Purchases, will remain with the purchasing department in an advisory executive capacity.

Adolph S. Pezoldt, Jr. has been named to the newly created post of Director of Procurement and Planning of Morrison Steel Products, Inc., Buffalo, N. Y. He was formerly Purchasing Agent.



Adolph S. Pezoldt, Jr.



Alex B. Savanyu

Succeeding Mr. Pezoldt as Purchasing Agent is Alex B. Savanyu, who has been the company's Assistant Purchasing Agent for the past five years.

George L. Duke, Purchasing Agent for the Lima, Ohio small motor division of Westinghouse Electric Corporation, has announced the following promotions:

John B. Gobbin to supervisory buyer in charge of the expense materials, tools and sub-contracting group;

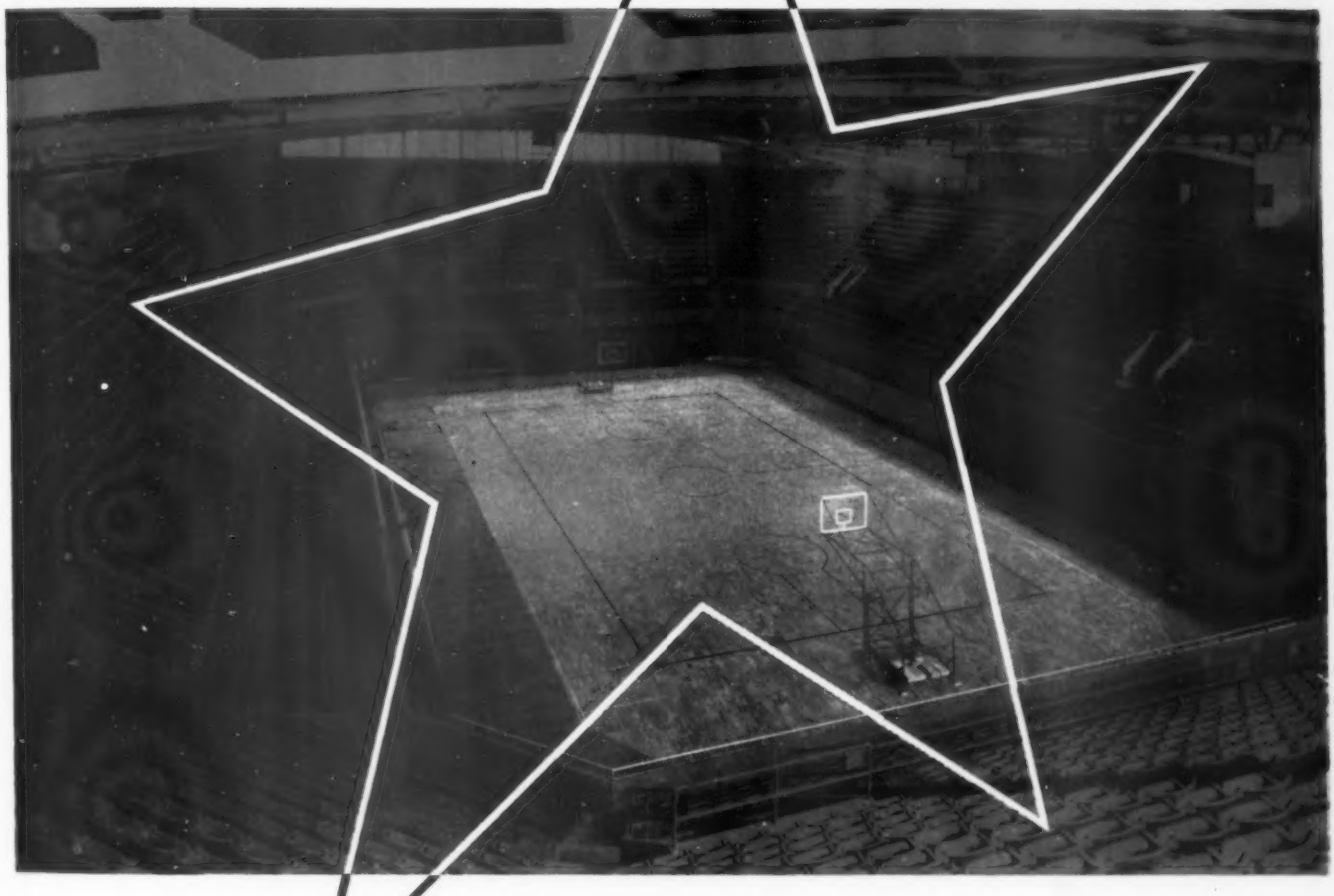
John P. O'Leary to supervisory buyer in charge of the raw materials, castings and forgings group;

Barney W. Price to supervisory buyer in charge of the component parts group.

W. H. Haugh has been appointed Purchasing Agent for Chance Vought Aircraft, Dallas, Tex., a division of United Aircraft Corporation.

E. L. Myers, formerly Supervisor of Expedition in the purchasing department of Allis-Chalmers Manufacturing Company's Norwood (Ohio) Works, has been appointed Assistant Purchasing Agent at Norwood. Mr. Myers joined the department in 1943 as an expeditor.

SPANG® CW is a star performer



in the University of Detroit's new Memorial Building

Built to provide facilities for sports, plays, lectures and other important campus activities, the University of Detroit's new Memorial Building is the last word in modern, up-to-date planning.

With a seating capacity of 11,000, this completely air conditioned, two and one-half million dollar structure is a major investment. Therefore, it was built with only the best materials . . . carefully planned to give long-time service, free from maintenance problems.

For instance, wherever pipe was needed—for plumbing, heating and air conditioning—reliable Spang CW Steel Pipe was installed 100%.

And there was a good reason. Spang CW is *the quality-controlled* pipe. Constantly inspected through every step of manufacture and carefully controlled during forming, Spang CW always gives complete dependability and freedom from trouble.

Which explains why Spang Steel Pipe has just the right characteristics to give easy threading, bending and cutting . . . features that speed installation time and reduce costs.

So don't just ask for pipe. Specify *better* Spang CW Steel Pipe from your local Spang distributor.



Owner: University of Detroit
Architect: Harley, Ellington & Day, Inc., Detroit, Michigan
General Contractor: W. E. Wood Company, Detroit, Michigan
Piping Contractor: Harrigan & Reid Company, Detroit, Michigan



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General Sales Office: Pittsburgh 30, Pa. District Sales Offices: Atlanta, Boston, Detroit, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis.

how two companies cut packing costs

Read this if you ship in corrugated or fibre cartons! It tells how two well known manufacturers cut packing costs . . . by thousands of dollars *annually* . . . with International Carton-Stapling Machines. Here's the story:



$28,000 saved by Harrison Steel Cabinet Co., manufacturers of kitchen wall, base and sink cabinets. Harrison improved working conditions . . . doubled production.



$20,000 saved by Uarco, Inc., manufacturers of business forms. Closing 2,500 cartons formerly took 48 man-hours . . . now it takes 12 man-hours.

40 models...from portable units to big multi-head automatic models. Write for details.

INTERNATIONAL STAPLING MACHINES
INTERNATIONAL STAPLE & MACHINE COMPANY
804 E. Herrin St., Herrin, Illinois

William R. Steinmayr has been appointed Purchasing Agent of The Pullman Company, Chicago, Ill. Mr. Steinmayr started with Pullman 30 years ago as an office boy, and was named Assistant Purchasing Agent in 1950.

G. C. Brons has been elected Vice President in Charge of Purchasing of the Scholl Mfg. Co., Inc., Chicago, Ill. He has been associated with the company since 1922, and was named Purchasing Agent in 1942.

David H. Thakar has been appointed Vice President in Charge of Purchases and executive assistant to the President of Alloys & Chemicals Mfg. Company, Cleveland, O.

Orville Henderson has been appointed Purchasing Agent and Advertising Manager of the Koh-I-Noor Pencil Company, Inc., Bloomsbury, N. J. He succeeds Allan A. Lewis, who recently retired. Before his present appointment, Mr. Henderson was in charge of the accounting departments of both Koh-I-Noor and L. & C. Hardtmuth, Inc.



Orville Henderson

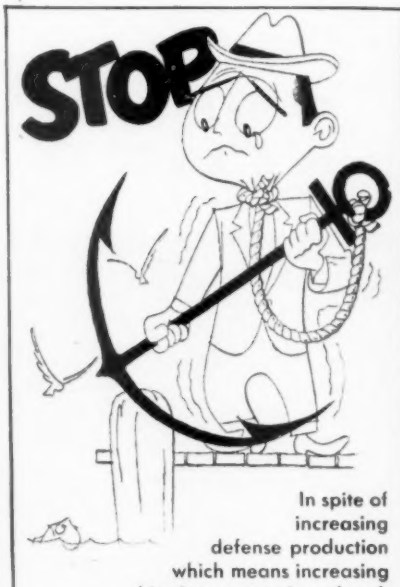
Myron M. Hemmerdinger has been appointed Director of Material at Inet, Inc., Los Angeles, Calif. Prior to joining the company, Mr. Hemmerdinger handled purchasing of a number of major western firms, including the Drayer-Hanson Corporation of Los Angeles.

Robert B. Leggat has been named Purchasing Agent of Granite City Steel Company, Granite City, Ill. He succeeds Lyle F. Gulley, who has been appointed assistant to the Vice President in Charge of Operations. Mr. Leggat was formerly Chief Expediter for the company.

Donald C. Shand, Director of Purchases for the Hupp Corporation, has been appointed to the Public Lighting Commission of Detroit by Mayor Shobo.

William M. Bridwell has been appointed General Purchasing Agent for the General Steel Castings Corporation, St. Louis, Mo., and will direct all work at their plants in Granite City, Ill., and Eddystone, Pa. He entered the purchasing department in 1941 and was made Purchasing Agent in 1943.

George O'Gorman, who was recently named Director of Purchases for the City of Philadelphia after 20 years as Purchasing Agent for City College of New York, has been promoted to Procurement Commissioner of the city.



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the world's fastest transportation system
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We specialize in electric wire, cable and conduit, and are the nation's headquarters for hard-to-get electrical items at the right price. We maintain large stocks of all types of electric wire and cable at regular and high voltage, including Type R, RH and RW, RL, RHL, TW, BX, ROMEX, RR, Portable cords weatherproof wire, asbestos cables, welding cable, bare copper wire, etc. Full line of thin wall conduit, greenfield, black and galvanized rigid conduit, and fiberduct.

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1881 CAPEWELL

BAND SAW BLADES "Old Cape" says:

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Please send me your bulletin on Band Saw Blades.

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INDUSTRIAL DEVELOPMENTS

Reynolds Metal Company has awarded a joint general and mechanical contract for the construction of its Robert P. Patterson aluminum reduction plant at Arkadelphia, Ark., to Ditmars-Dickmann-Pickens Construction Co., Little Rock, and W. S. Bellows Construction Co., Houston. Work will begin immediately and is expected to be completed by July, 1953. The plant will have a yearly capacity of 110,000,000 pounds of aluminum.

Worthington Corporation has consolidated headquarters for the sales, engineering and production of Multi-V-Drives and Allspeed drives at its Oil City, Pa., plant. The products were formerly made at the company's Buffalo, N. Y., Wellsville, N. Y., and Holyoke, Mass., plants.

American Alloys Corporation, Kansas City, Mo., recently opened the first two wings of its new aluminum smelter facilities (housed in the building shown



Drawing of new building for American Alloys' aluminum smelter.

here). The company produces primary and secondary aluminum casting alloys and makes "AmAlloy", a new high strength aluminum-magnesium alloy. The smelter is located on a six and one-half acre site in the northeast industrial area of Kansas City.

Wendt-Sonis Company, Hannibal, Mo., manufacturer of carbide-tipped cutting tools, has expanded its plant with a new addition that doubles the original manufacturing area.

Synthane Corporation, Oaks, Pa., manufacturer and fabricator of laminated plastics, has added a new wing to its Oaks plant, providing an additional 18,000 square feet of floor space. This is the eleventh major plant expansion since the original factory was built in 1929.

Stronghold Screw Products, Inc., has purchased a building comprising 80,000 square feet in Chicago, Ill. The acquisition will permit Stronghold to double its present manufacturing facilities.

Yale Rubber Manufacturing Company has opened a new $1,000,000 plant at Sandusky, Mich. At the opening, it was announced that J. Willard Childe has been named sales manager of the company's Detroit branch.

Safety and Cleanliness

PLUS BEAUTY AND ADVERTISING VALUE!

Matting by U.S. RUBBER

FOR SAFETY: U.S. Matting is slip-proof, insulates against cold floors. Working conditions are healthier, too. It is available specifically designed for the particular job in hand, in every type of industry. For example, matting for the meat packing industry is made of neoprene to withstand fats and greases.



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Among the Companies You Buy From

Cincinnati, O. — Monsanto Chemical Company, Plastics Division. Harold D. Woodmansee has been named branch manager of the newly created sales office here. He was formerly with the division's Detroit sales office.

Detroit, Mich.—Russell, Burdsall & Ward Bolt and Nut Company. Aaron Evans has been appointed Detroit sales manager, succeeding Alfred Fairfield, retired. Mr. Evans has represented RB&W in a sales capacity here for some time.



Aaron Evans

New York, N. Y.—Fiber Glass Division, Pittsburgh Plate Glass Company. A new district sales office has been opened here at 30 Rockefeller Plaza. Paul D. Kaley has been named district sales manager. A sales office has also been opened at 1545 New York Ave., N.E., Washington, D. C., with H. J. Bygott, Jr., as district sales manager. The division also maintains district sales offices at Detroit and Chicago.

Cincinnati, O. — Acme Steel Products Division, Acme Steel Company. Paul J. Isvolt has been appointed district sales manager here. He replaces Neil J. Anderson who was recently transferred to the company's general offices in Chicago as manager of the Steelstrap department.

Harrison, N. J.—Adamas Carbide Corp. Frank W. Hogan has been appointed assistant to the sales manager. He was previously general sales manager for American Ball Bearing Company.

New York, N. Y.—Stromberg Time Corporation, subsidiary of General Time Corporation, has assumed the sales and distribution of Cannon signal equipment for commercial organizations, institutions and hospitals. The products are made by Cannon Electric Company, Los Angeles, Calif.

Los Angeles, Calif.—Farr Company. John S. Powell has been named division sales manager, supervising the central division.

Milwaukee, Wis.—Koehring Company. John S. Conway, who was general sales manager, has been named vice-president in charge of sales. John E. Chadwick has has been appointed sales manager.

Chicago, Ill.—Chicago Molded Products Corporation. Robert F. Hrudka has been named sales manager of the Campco Extruded Products Division.

Lansing, Mich.—Lansing Company. Eugene A. Gump has been appointed general manager and Harold Daschner has been appointed sales manager. Mr. Gump has served successively as purchasing director and sales manager of the organization. Prior to his affiliation with the company he was director of purchases for the State of Michigan.

St. Louis, Mo.—Frank Adam Electric Company. Daniel Staehle, Jr. has been elected vice-president in charge of sales. Arthur Koehler has been chosen sales manager.

Chicago, Ill.—Fiber Glass Division. Libbey-Owens-Ford Glass Company. John T. Shute has been named district sales manager here.

Athol, Mass.—The L. S. Starrett Company. The following changes in sales personnel have been announced: Thomas R. Griffith, previously with the New York office, has been assigned the northeastern Pennsylvania-south central New York territory: Tudor Garland has been assigned to the New York office; Walter Clark has been assigned to the north central New York territory, assisting Jack Lynch.

Detroit, Mich.—The Udylite Corporation Raymond Dearth has joined the company as sales engineer for the northern Indiana area.

Baltimore, Md. — Pittsburgh Glass Company. Alan B. Castator has been appointed general sales manager for the company's brush division factories at Baltimore, Md. and Keene, N. H. He will make his headquarters in Baltimore. Mr. Castator has been associated with Pittsburgh Plate Glass since 1931, and for the past five years has been assistant manager at the Detroit warehouse.



Alan B. Castator



SUPPLIERS SUPPLIED—Salesmen were guests of honor along with employees of Lavoie Laboratories, Inc., at a 10th anniversary party the company held at Morganiville, N. J., recently. Gene Croddick, Purchasing Agent for Lavoie, saw to it that the guests were supplied with the finest of fare and beverages during the two-day celebration. Vaudeville entertainment and dancing were also part of the program. Shown above, left to right are Mr. Croddick, P.A; Eugene J. Lavoie, Plant Superintendent; Jack Reed, Assistant Sales Manager, Westinghouse; Stephen D. Lavoie, President; and Jack Daly, Westinghouse representative.



How temperamental can a piece of steel be?

● Plenty! Because steel is one of the most *versatile* of all materials, it can play tricks on you . . . can be mighty temperamental, even obstinate. But, properly controlled, it works for you precisely the way you want it to!

For generations, National-Standard's Athenia Steel Division has specialized in the behavior engineering of high carbon steel for the most exacting services. Here, they've learned how to take the fullest *advantage* of steel's versatility. It results in specially engineered, rigidly controlled steels that do a *better* job in all kinds of products from umbrella ribs and pen points to camera springs and piston rings.

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NATIONAL-STANDARD	*Niles, Mich.*	Tire Wire, Fabricated Braids and Tape
REYNOLDS WIRE	*Dixon, Illinois*	Industrial Wire Cloth
WAGNER LITHO MACHINERY	*Jersey City, N. J.*	Lithographing and Special Machinery
WORCESTER WIRE WORKS	*Worcester, Mass.*	Round and Shaped Steel Wire, Small Sizes

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COMMERCIAL LIGHTWEIGHT CASTINGS

Your commercial requirements for lightweight castings in aluminum or magnesium may be tough, but we'd welcome an opportunity to look them over. We've tackled a good many diversified casting problems over almost a half century.

Our four completely equipped plants and their trained personnel are at your disposal.



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THE WELLMAN BRONZE & ALUMINUM CO.

DEPT.17, 12800 SHAKER BLVD., CLEVELAND 20, OHIO

Chicago, Ill.—Brown & Sharpe Mfg. Co. Thomas F. MacLaren has been appointed representative in the company's office here.

Pittsburgh, Pa.—United States Steel Company. Marcus W. Chapman has been appointed assistant general manager of sales-distribution. James P. Barton succeeds Mr. Chapman as manager of sheet and strip sales.

New York, N. Y.—The American Brass Company. Daniel B. Curtiss has been named sales manager of this district. He



Daniel B. Curtiss

has been with the company since 1936, and in the New York office since 1940, except for four years when he was serving in the Navy.

Rockford, Ill.—Sundstrand Machine Tool Co. T. B. Buell, formerly sales manager, has been promoted to general sales manager in charge of overall sales policies. Harry Leber, formerly manager of direct sales, succeeds him as sales manager.

St. Louis, Mo.—Bemis Bro. Bag Co. A. D. Hoeppner, formerly manager of the plastic bag department in Minneapolis, has been appointed supervisor of plastic bag sales at the company's general offices here. The appointment is made as part of the Bemis expansion program in the plastic film bag field.

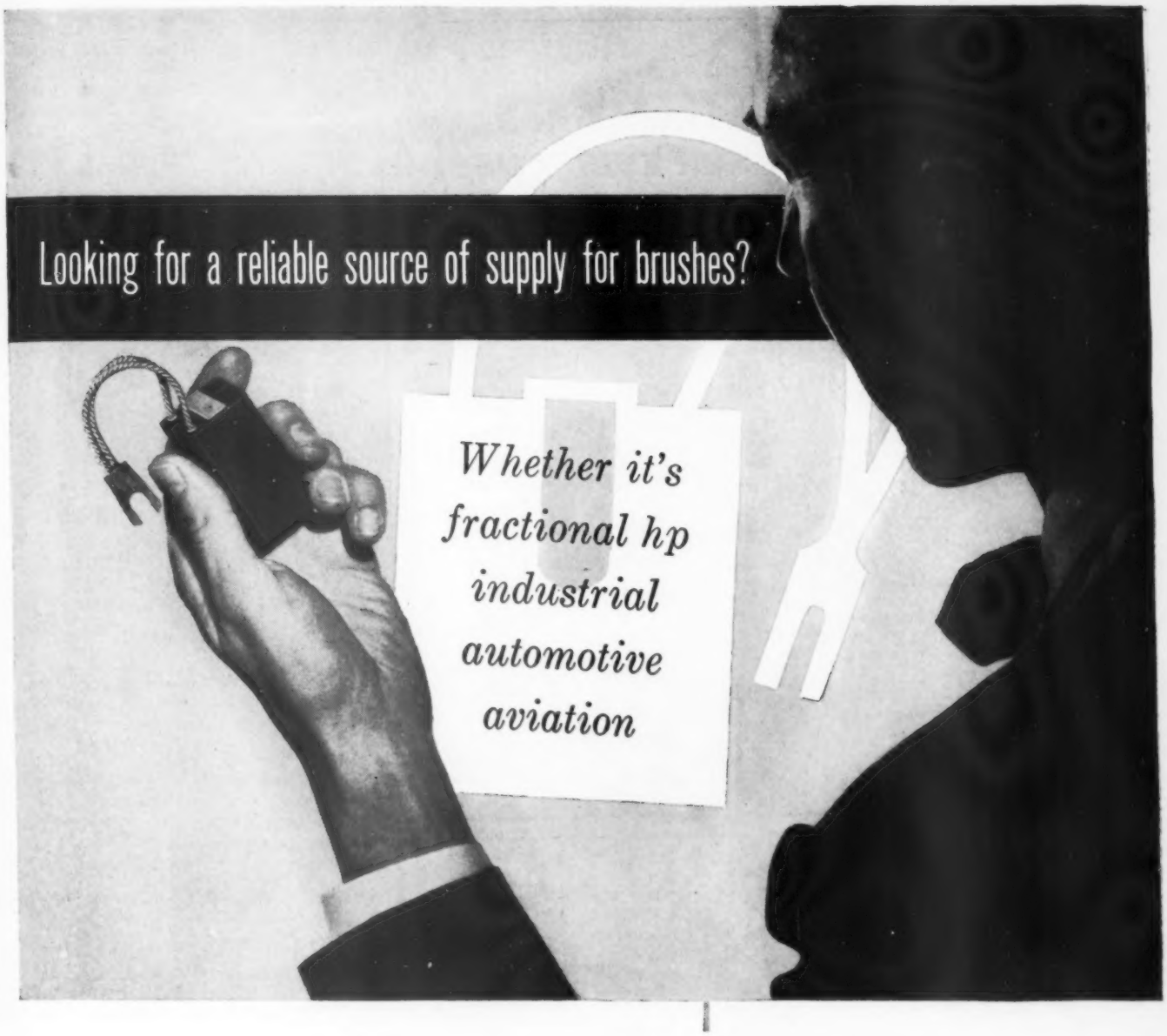
Chicago, Ill.—Illinois Tool Works. E. E. Valy has been appointed distributor sales manager for the company's new Illinite standard cutting tools.

Chicago, Ill.—Tar Products Division, Koppers Company, Inc. John T. Tierney, Jr., has been appointed midwestern district sales manager, with headquarters here. He succeeds W. O. Boyd, who is retiring after 35 years' service.

New York, N. Y.—Alloys & Products, Inc. Andrew E. St. John has been elected president, succeeding the late Henry Hecht.

Chicago, Ill.—Standard Pressed Steel Company. Landon C. Fuqua has been appointed a sales representative here.

Boston, Mass.—Westinghouse Electric Corporation. Alfred E. Lambert, Jr. has been named New England manager of distribution apparatus sales.



Speer makes them all!

Experienced P. A.'s know they can rely on Speer as a dependable source of supply for all types and sizes of brushes.

Reasons for this confidence and trust aren't hard to find. *Every step* in manufacturing . . . extruding, molding, baking, finishing . . . is precisely controlled in Speer's own plants. But this care doesn't stop with production. Speer brushes are also *application-tested* . . . two ways. First—in our special testing laboratories . . . then in hours and hours of on-the-job operation.

If you want reliable brushes that will meet your specifications *every time*—check with Speer today.

Write for our free booklet, "Speer Carbon Products."

A Speer *application-tested* brush for every use

motors · ignition systems · power plants
generators · rotary converters
power tools · starters · subways
accounting machines · windshield wipers
Diesel locomotives · household appliances

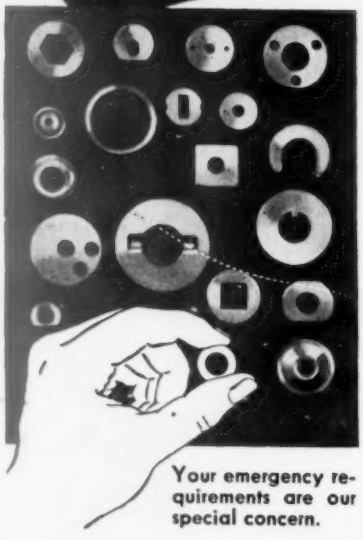
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St. Marys, Pennsylvania

Speer Resistor Division
International Graphite & Electrode Division
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STEEL WASHERS
FOR EVERY NEED



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FOR 38 YEARS . . .

Your requirements for standard and special steel washers are sure to be satisfied at Joliet. A bank containing thousands of special dies in many shapes and forms, 9/32" to 8" O.D., gauges No. 28 to 3/8", stands ready to answer your needs. A VARIETY OF FINISHES IS AVAILABLE to meet your special needs, including: Electro-plating, Galvanizing, Parkerizing, and Cyanide hardening.

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THERE'S NO SUBSTITUTE
FOR QUALITY AND SERVICE

Your emergency requirements are our special concern.

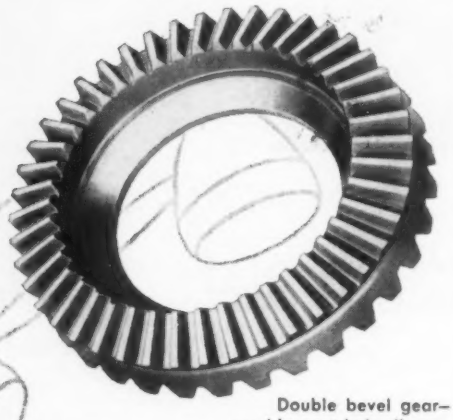
203 CONNELL AVE.
JOLIET, ILLINOIS

JOLIET WROUGHT WASHER CO.

Bramble-7700

BRamble 7700 is our telephone number in Cincinnati. If you have a gear problem, call us—we would enjoy discussing it with you. We have been helping industry since 1907, and we can undoubtedly help you, too.

We are proud of our craftsmen, proud of our gears, proud of our reputation for quality. And we are proud of the fact that our customers can deal with us with complete confidence—an established, reputable firm with whom you, too, will enjoy working.



Double bevel gear—used in post hole digger

Spur	Internal
Helical	*Coniflex Bevel
Worm	Spiral Bevel
Herringbone	Spline Shaft

*Reg. U. S. Pat. Off.

For full information, write, wire, or call BRamble 7700.



THE CINCINNATI GEAR COMPANY
"Gears . . . Good Gears Only"
Wooster Pike and Mariemont Ave. • Cincinnati 27, Ohio

Worcester, Mass.—Norton Company. George A. Park, formerly sales manager, eastern region, has been appointed to the newly created post of manager of distributor sales. Eastern and central sales regions will be combined under Donald L. Price as sales manager, eastern region. He was formerly sales manager, central region.

Philadelphia, Pa.—Quaker Rubber Corporation, Division of H. K. Porter Company, Inc. F. P. Murken has been appointed manager, industrial hose division.



F. P. Murken

He will be in charge of sales of all types of industrial hose. Until his present appointment, he had been manager, wrapped hose division.

West New York, N. J.—Gould-National Batteries, Inc. The company's northeastern area service and repair center has been moved here to 309 51st Street. It was formerly in North Bergen, N. J.

Detroit, Mich.—Catalytic Combustion Corporation. Paul H. Goodell has been named sales manager.

Windsor, Ontario, Can.—Standard Paint and Varnish Company, Ltd. Robert C. Aikin has been appointed general sales manager.

St. Louis, Mo.—The Parker Appliance Company. Pete E. Walker has been appointed industrial sales engineer with headquarters here.

Niagara Falls, N. Y.—The Carborundum Company. Harold C. Smith, Jr., has been named manager, rail and government sales.

Philadelphia, Pa. – Standard Pressed Steel Company. Bob Dando, a salesman in the St. Louis area for the past six years, has been transferred to this territory.

Cleveland, O.—Kaiser Aluminum & Chemical Sales, Inc. Robert F. Tighe has been appointed manager of the district sales office here. He succeeds Robert H. Black, who has been transferred to the general offices at Oakland, Calif.

Chicago, Ill.—Abbott Screw & Bolt Company. The company has moved to a new permanent location here at 1728 W. Walnut Street. The building, owned by the company, contains factory, warehouses and general office.



Who moved Ruth?

You did, for one. And there are a hundred million others just like you.

It's tough to have to move a 50-year-old town. But there's a lot of copper under Ruth, Nevada. And popular demand for copper and Brass alloys is increasing so sharply that Ruth is moving soon to the modern town of New Ruth, now abuilding.

Yes, the demand for Brass is never so urgent as it is right after a period of shortages. For then it's common knowledge, right fresh out of recent personal experience, *that there are no substitutes for Brass.* From plumbing fixtures to TV parts, every industry knows that there are countless applications in which there's nothing like Brass for workability, saleability . . . and serviceability which makes the golden-yellow metal the lowest-cost material in the long run, on job after job.

Now if you want Brass sheet, rod and wire that's made as you want it and delivered when you need it . . . *then buy Bristol Brass* . . . which is now rolling out of these modern mills faster than it ever did before.

. . .

The BRISTOL BRASS CORPORATION, makers of Brass since 1850 in Bristol, Conn. Offices or warehouses in Boston, Chicago, Cleveland, Dayton, Detroit, Los Angeles, Milwaukee, New York, Philadelphia, Pittsburgh, Providence, Rochester.

"Bristol-Fashion" means **Brass at its Best**



It gives you the last word on *group replacement*

In simple, practical terms it tells you

ACT NOW and SAVE LIGHT SAVE TIME SAVE MONEY MAIL THIS COUPON TODAY

- how to determine your most profitable cleaning cycle
- how to eliminate 83% of your lamp burnouts
- how to cut lamp replacement to a sixth of its former cost

CHAMPION LAMP WORKS
LYNN, MASSACHUSETTS

Please mail your *Free File Folder H* on planned cleaning and group replacement, at no cost or obligation to:

Name ..... *Position* .....
Company .....
Street .....
City ..... *Zone* ..... *State* .....

Portland, Me.—Minneapolis - Honeywell Regulator Company. James E. Vanderveld has been appointed industrial sales manager of the company's office here.

Portland, Ore.—Minneapolis - Honeywell Regulator Company. Fred B. Akerson has been named industrial manager of the regional office here.

Los Angeles, Calif.—Chase Brass & Copper Co., Inc., subsidiary of Kennecott Copper Corporation. Charles W. Baker,



Charles W. Baker

formerly Milwaukee district manager, has been appointed western regional manager with headquarters here. He will supervise Chase sales operations in 11 western states.

Milwaukee, Wis.—Cutler-Hammer, Inc. K. M. Nelson has been appointed division manager, industrial control sales.



William O. Murray

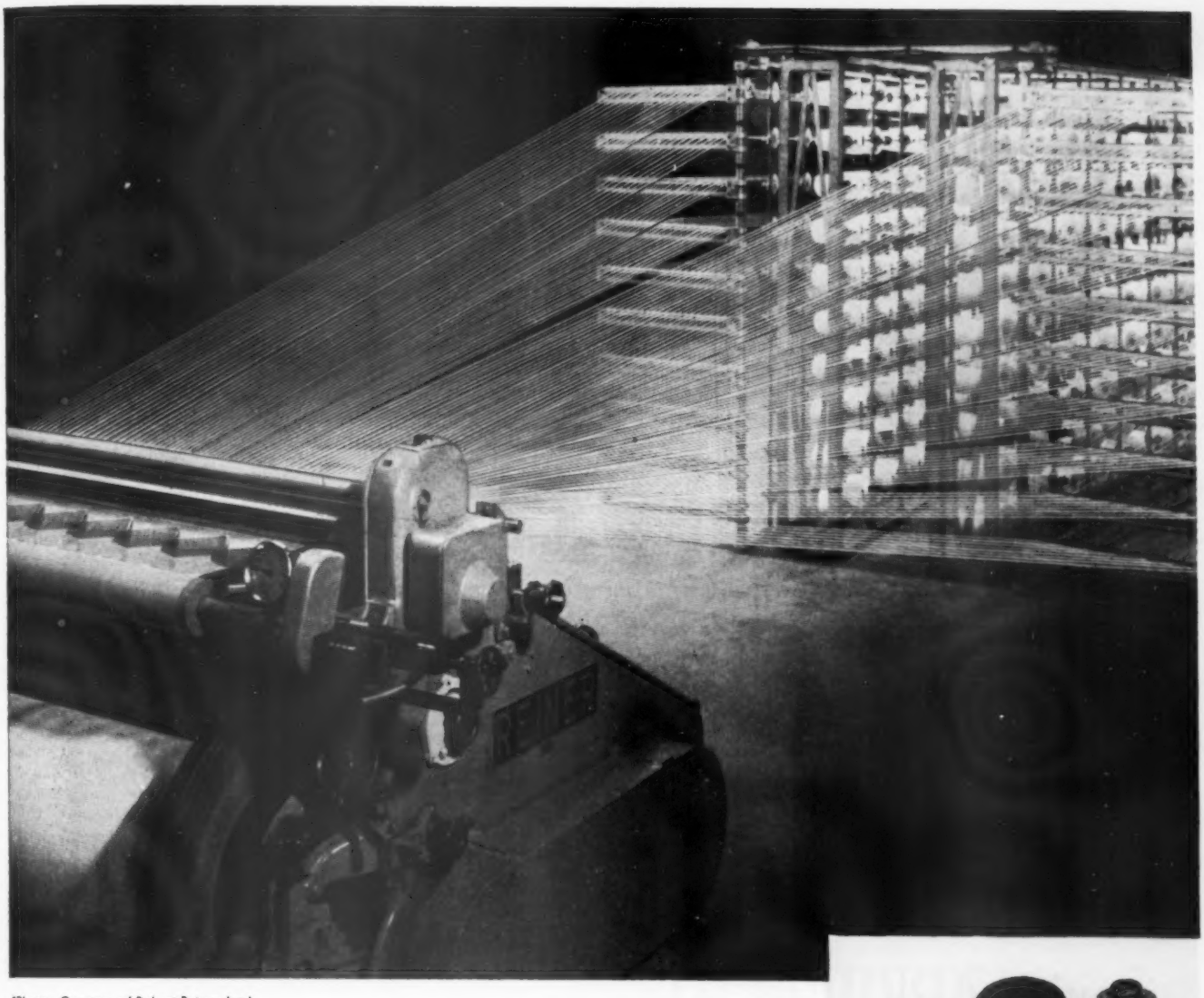
Pittsburgh, Pa.—The Parker Appliance Company. William O. Murray has been appointed industrial sales engineer here.

Indianapolis, Ind.—Chase Brass & Copper Co. Ralph H. Stroth, formerly assistant manager, Cincinnati district, has been appointed district manager here.

Camden, N. J.—Camden Forge Company. George Peterson, Jr., has been appointed director of aircraft sales. He was formerly with The Riverside Metal Company.

Coatesville, Pa.—Lukens Steel Company. W. Harrison Lackey has been appointed manager of plate sales.

Seattle, Wash.—The Parker Appliance Company. Palmer Supply Company has been named franchised distributor of industrial tube fittings and tube fabricating tools made by Parker.



(Photo: Courtesy of Robert Reiner, Inc.)

Miles of Nylon filament with a problem in every inch . . . for SYNTHANE

You are looking at thousands of miles of the hair-fine filaments that go into nylon fabric.

Many equipment and processing problems must be worked out before these filaments emerge as blouses, curtains or couch covers. Synthane solves many of these problems. For example, to process nylon yarn, treatment with a corrosive size is necessary. Machine components made of Synthane laminated plastics stoutly resist corrosion.

The "elastic memory" of nylon causes the fit that endears nylon hosiery to women, but it also crushes ordinary bobbins on which the yarn is wound. Synthane laminated plastic bobbins successfully resist crushing.

Nylon filaments are glamorous. They are also so fine they must be handled gently. Synthane laminated plastic parts can be machined to snag-free super smoothness.

The properties that make Synthane laminated plastics essential to textile people may interest you. For information and ideas about how Synthane may be helpful to you, send for the Synthane Catalog. Synthane Corporation, 7 River Rd., Oaks, Pennsylvania.

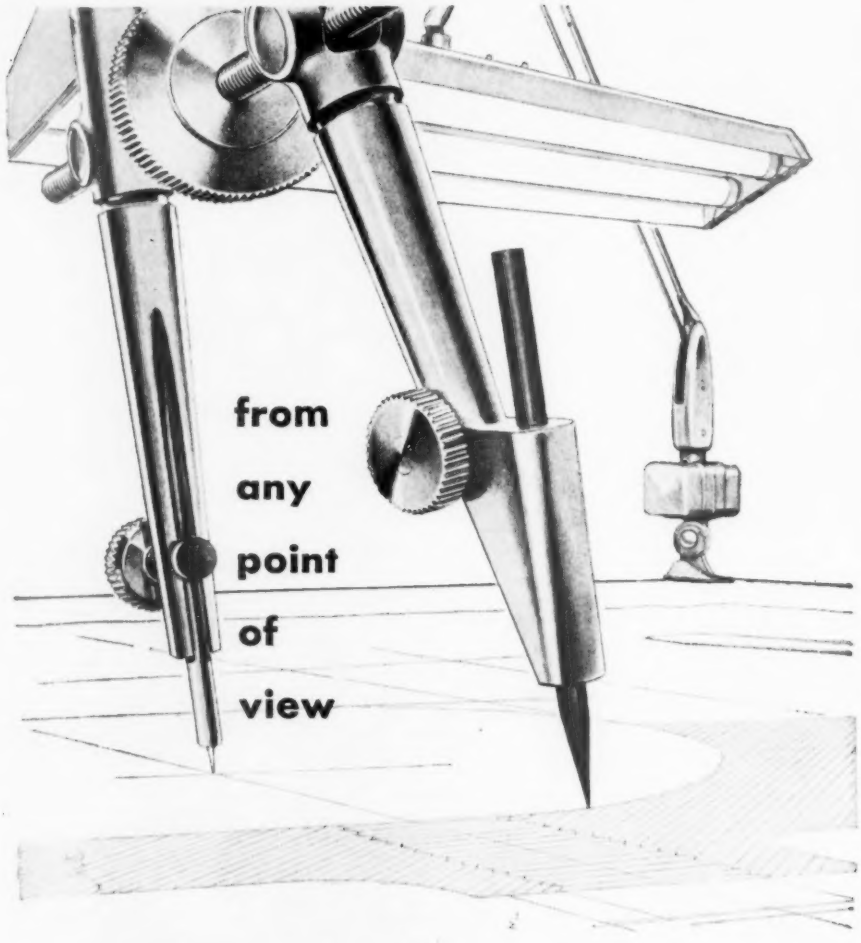


Bobbins, pins and redraw caps made from Synthane laminated plastics. Synthane is also used for hosiery examining forms, measuring rolls, piping, gears, verge plates and many other textile parts.

Synthane-one of industry's unseen essentials

SYNTHANE

LAMINATED PLASTICS



you'll get better results with ARKWRIGHT

First, the drawing and second, the reproduction will be cleaner, clearer, sharper when you use Arkwright Tracing Cloths.

In the drawing you'll work more smoothly, easily—without pinholes, uneven yarns or other imperfections to slow you. You'll get clean, "feather-free" lines even over an erasure.

In the reproduction you'll always have clear, "contrasty" results because Arkwright Cloth is *permanently* transparent—won't discolor or turn brittle and opaque with age like inferior products.

Are *you* interested in results like these? Specify Arkwright Tracing Cloths. Write for samples to Arkwright Finishing Co., Industrial Trust Bldg., Providence, R. I.



ARKWRIGHT
Tracing Cloths
AMERICA'S STANDARD FOR OVER 30 YEARS

FIRST CRIMINAL CONVICTION FOR VIOLATION OF NPA REGULATION

The first criminal conviction for violation of NPA regulations, obtained Wednesday in Houston, Texas, prompted the following comment by Robert H. Winn, assistant general counsel in charge of enforcement for the National Production Authority, Department of Commerce:

"In a case investigated by NPA and referred to the Department of Justice with a recommendation for criminal prosecution, Judge Allen B. Hannay in Houston, Wednesday sentenced W. A. Redding, doing business as the Houston Blow Pipe and Sheet Metal Works, to pay a $1,000 fine within 30 days, and imposed a $5,000 fine on the Melton Iron and Supply Co., both of Houston. They had pleaded nolo contendere to four charges of violating NPA regulations. A fifth charge of conspiracy was dismissed by the U. S. attorney.

"The violations charged illegal diversions into the black market of about 145 tons of hot rolled sheet steel obtained by the use of priority ratings, and intended for the manufacture of 2,000 ammunition lockers for the U. S. Navy at the contract price of $199,560. W. A. Redding sold the steel in question to Melton Iron and Supply Company, which in turn disposed of it in the black market.

"The Houston Blow Pipe and Sheet Metal Works is engaged primarily in the manufacture of industrial fans, blowers and other ventilating and heating equipment, and in general sheet metal work. The Melton Iron and Supply Company is engaged in the purchase and sale of metal.

"A number of other cases have been referred for prosecution to U. S. attorneys and are awaiting trial in various parts of the country.

"We will continue to refer cases to the Department of Justice whenever they disclose evidence of deliberate violations of our regulations. In addition, we will take administrative action wherever warranted to deprive violators of the use of controlled materials.

"Only by continuous and vigorous enforcement action can we protect the law-abiding consumers of controlled materials from depredations of those who attempt to cash in on shortages created by the national emergency."

* * *

USE OF FERRO-ALLOYING MATERIALS MUST BE CERTIFIED

Because of the necessity to conserve ferro-alloying materials, many of which must be imported from foreign countries, the National Production Authority, Department of Commerce, took action to require persons ordering alloy products or processed products from melters or processors to certify that transactions involved are in accordance with NPA Order M-80.

With the issuance of Amendment 4 to M-80 (ferro-alloys and ferro-alloy products), Fred F. Franklin, Acting Assistant Director of the NPA Iron and

(*Please turn to page* 276)



YOU GET MORE-

IN STEEL CONTAINERS MADE BY CONTINENTAL..

you get the *engineering skill* of a *full-line* container manufacturer

The sleek, streamlined appearance of Continental steel containers tells you that they were designed by men with a packaging expert's eye for good looks, as well as an engineer's interest in utility.

And the way these containers take the battering and bouncing of transcontinental shipping is evidence of the solid durability that has been designed into them.

So even though you may never need to call upon our packaging engineers for help with a special packaging problem, you get the benefits of their designing and production skill in every Continental steel container you use.

Included in the Continental line are lug cover pails, utility cans, flaring pails, and closed head drums in light and heavy gauge. Chances are one of them is just right for your product. We'll be glad to talk over your packaging problem, and suggest a container exactly suited to your needs.

CONTINENTAL CAN COMPANY

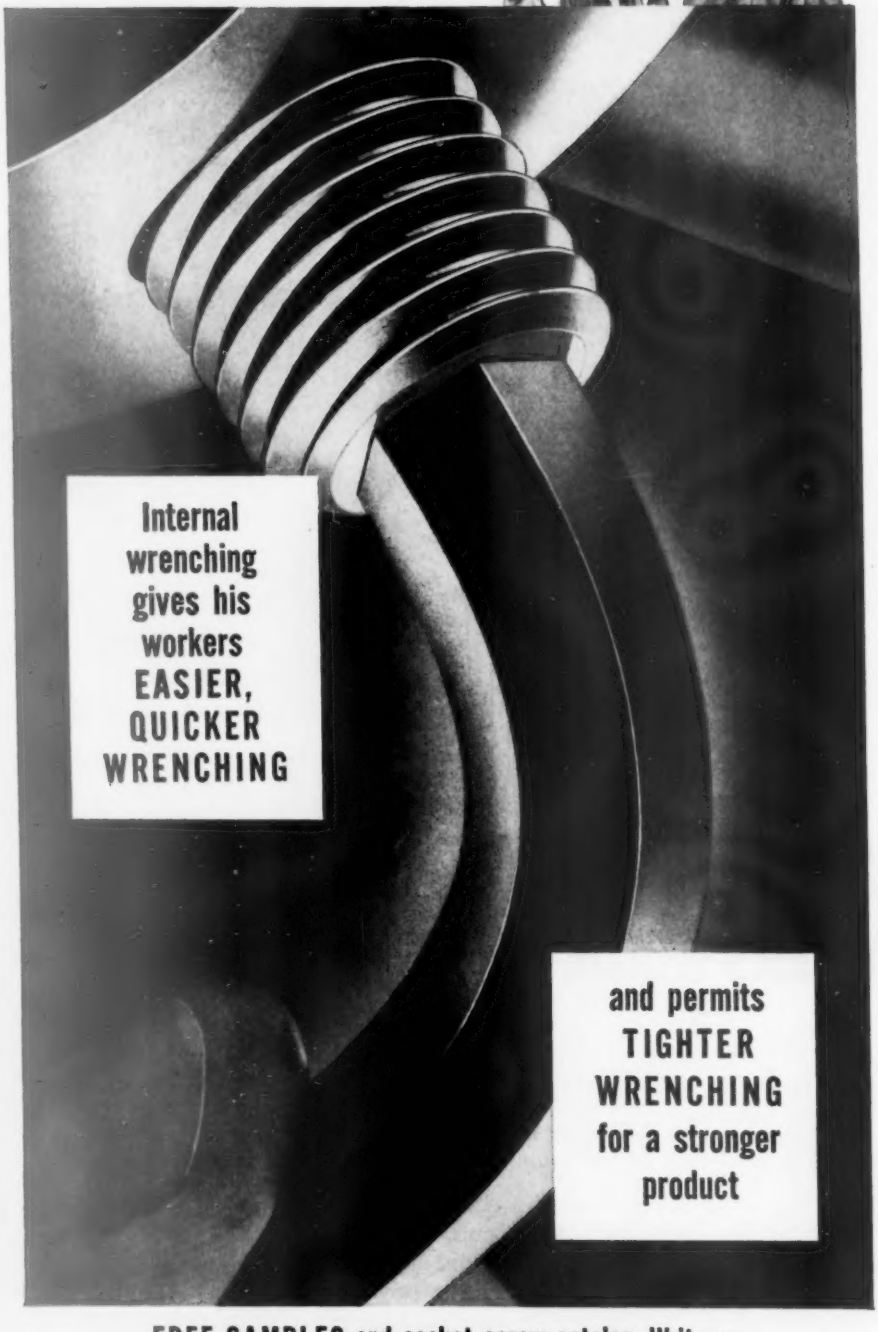
CONTINENTAL CAN BUILDING

100 East 42nd Street New York 17, N. Y.

Eastern Division: 100 E. 42nd St., New York 17 • Central Division: 135 So. La Salle St., Chicago 3 • Pacific Division: Russ Building, San Francisco 4

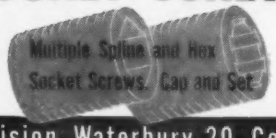
Faster Assembly is easy for this Plant Engineer





FREE SAMPLES and socket screw catalog. Write us.

BRISTOL'S SOCKET SCREWS



THE BRISTOL COMPANY, Socket Screw Division, Waterbury 20, Conn.

(Continued from page 274)

Steel Division in charge of ferro-alloys, said the certification constitutes a representation by the purchaser to the melter or processor that the alloy product or processed product ordered will not be used by the purchaser in violation of M-80 or any of its schedules.

Amendment 4, effective immediately, provides that the certification must be made to the melters or processors of the alloy or processed product either by endorsement on the purchase order, or by delivering a separate certification with the order, such as an accompanying letter.

The following alloying materials, when used in an alloy product or processed product, are covered by schedules in M-80: Schedule 1, nickel; Schedule 2, cobalt; Schedule 3, tungsten, except pure tungsten; Schedule 4, molybdenum; except pure molybdenum; Schedule 5, columbium and tantalum. Alloy products are covered by Schedule A, nickel bearing stainless steel, high nickel alloy, and nickel silver; and Schedule B, tool steel and high speed steel. All are important in the production of direct military and atomic energy items, and in defense-supporting programs.

DEVELOP NEW HIGH TEMPERATURE ALLOY-SAVING STEEL

Development of a ferritic or relatively low alloy steel for high temperature applications, was recently announced by Crucible Steel Company of America. Designated as Crucible 422, the new steel is said to satisfy the design engineer's need for high strength bolts and blades in modern steam and gas turbines. Crucible 422 meets the following standards for a satisfactory ferritic steel for services above 1000 degrees F:

1. Stress rupture and creep strength at least equivalent to those of austenitic steels at 1000 and 1100 degrees F.
2. Reasonable structural stability.
3. Adequate scale resistance.
4. Maintenance of good ductility (workability) at service temperature and at room temperature subsequent to a long period of service.
5. High notched stress-rupture strength at service temperatures.
6. Good combination of room temperature strength and ductility obtainable by heat treatment.

REMOVE LIMITATIONS ON USE OF SULFUR

Removal of limitations on the use of sulfur and elimination of sulfur inventory controls was announced by the Chemical Division of the NPA. The action revokes Sulfur Order M-69. The order as amended January 1, 1952, restricted sulfur use to 90% of 1950 usage and provided for full support of certain defense and essential civilian requirements. Revocation of the order was made possible, it was explained, because sulfur supply has caught up with demand, with an improved position of sulfur inventories.

Metcalf

100% WOOL

Twist Gabardines

FOR

UNIFORMS

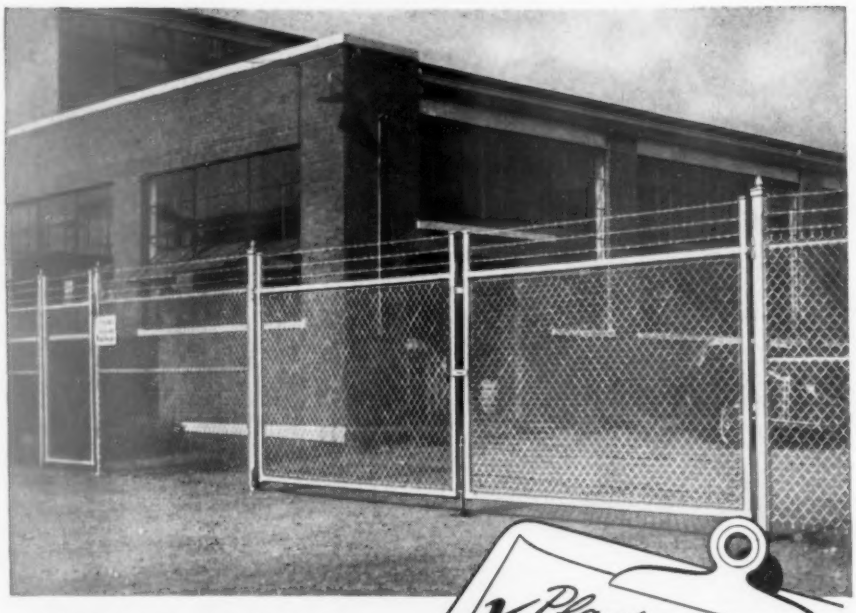


Woven by Metcalf...
for Over 85 Years,
Leaders in Fine All Wool Fabrics

Metcalf-controlled from yarn to finished fabric for quality, good looks, durability, warmth. Woven with a hard finish that resists friction at all points of wear, retains its smart appearance. In 12 oz., 14 oz., 16 oz., weights. Colors: Blue Mixture, Brown Mixture, Green Mixture, Oxford. Good fabrics for good uniforms.

METCALF BROS. & CO., INC.
45 EAST 17th STREET, NEW YORK CITY

FOR UNIFORM SATISFACTION



Which of these does your plant need?

✓ Plant and equipment protection
✓ Outdoor storage protection
✓ Traffic control

Anchor Fence solves them all!

INSTALL Anchor Fence *now* and solve three problems at once! Trespassers, agitators and troublemakers are kept outside, where they belong! Materials and supplies stored in the open are protected, and plant and truck traffic controlled more efficiently!

What's more, Anchor Chain Link Fence gives you exclusive features that add up to more protection, better protection, and longer-lasting protection. Only Anchor gives you *Deep-Driven Anchors* that hold your fence permanently erect and in line. *Square Frame Gates* provide additional strength and resistance against sagging. *H-Beam Line Posts* are rigid and rust-resistant because of self-draining, open construction. And *Square Terminal Posts* increase durability and improve appearance.

FOR MORE FACTS on Anchor Fence, send for our fact-packed Industrial Fence Catalog. Or, ask for one of our experienced engineers to call and help you with your problems . . . no obligation, of course! Address: ANCHOR POST PRODUCTS, INC., 6615 Eastern Ave., Baltimore 24, Md.

Anchor Fence

Nation-wide Sales and Erecting Service

COPPER AND COPPER BASE ALLOY SCRAP INSUFFICIENT

Copper and copper base alloy scrap supplies are insufficient to meet requirements of refiners, custom smelters, ingot makers and brass mills, the non-ferrous metals scrap dealers advised the NPA NPA told members of the committee that it has to make accurate long-range calculations as to supply, and that current programs require 122,000 tons of refined copper each month—practically all the copper that is available. If there is any repayment to the Government copper stockpile, or if refined copper production declines any further, a deficit of refined copper will result, NPA said. Dealers were told that every pound of scrap is needed and that scrap must flow in a regular manner.

NPA said it has been able to meet programs during the third and fourth quarters of 1952 because we imported surplus copper. Such copper is no longer available, hence it is necessary to depend on current production and collection of scrap for our raw material supply. If scrap for use by custom smelters is not collected it will be impossible to obtain enough refined copper to repay the stockpile, it was pointed out.

* * *

INFORMATION MANUFACTURERS MAY RELEASE TO THE PUBLIC

Capt. John P. Megaris, Public Information Officer, Chicago Chemical Procurement District, Chicago, recently issued the following notice to Government contractors and subcontractors, on the subject of information that may or may not be released by manufacturers:

The Department of Defense has clarified the classification of information which manufacturers may or may not release to the public.

1. You *may* release the following:
   a. A statement that a contract (or letter of intent) has been received.
   b. Type of item in *general*, if it is not classified.
   c. On unclassified contracts:
      (1) Name of Purchasing Office
      (2) Brief description of commodity or service
      (3) Quantity
      (4) Dollar amount of contract
   d. A statement that workers in certain fields are required—number needed.
   e. A Prime Contractor may advertise for bids for component parts, if the contract will be unclassified.
2. You *may not* release to the public, information concerning the following:
   a. Sabotage attempts or plant security measures.
   b. Production schedules, future planning on production schedules or rates of delivery.
   c. Information on sources of supply, quantities and qualities of strategic or critical supplies and movements, assembly or storage of supplies or material.
   d. Movements of raw material or finished items.

(*Please turn to page* 280)

The U. S. Steel Supply team that gives you *personalized service*



...our salesman

puts this team to work for you!

SUPPLYING YOUR STEEL requirements becomes our team objective when you tell your needs to your U. S. Steel Supply salesman. Behind your salesman is a team of technical experts, each one a specialist in his field . . . and your business receives the attention of every member of the team who can contribute to its progress.

What do you need? Steel? Tools? Special purpose equipment or machinery? Advice on working an unfamiliar type of steel? Help in meeting a pressing delivery date? Give your order to your U. S. Steel Supply salesman. He will see that it gets immediate attention from the U. S. Steel Supply specialists best qualified to serve you.

YOUR "ONE CALL" SOURCE OF STEEL SERVICE

U.S. STEEL SUPPLY

USS

UNITED STATES STEEL SUPPLY DIVISION, UNITED STATES STEEL COMPANY
HEADQUARTERS: 208 So. LA SALLE ST., CHICAGO 4, ILL. WAREHOUSES COAST-TO-COAST

Warehouses and Sales Offices: BALTIMORE · BOSTON · CHICAGO · CLEVELAND · LOS ANGELES · MILWAUKEE · MOLINE, ILL. NEWARK · PITTSBURGH · PORTLAND, ORE. · ST. LOUIS · TWIN CITY (ST. PAUL) · SAN FRANCISCO · SEATTLE

Sales Offices: INDIANAPOLIS · KANSAS CITY, MO. · PHILADELPHIA · PHOENIX · ROCKFORD, ILL. · SALT LAKE CITY · SOUTH BEND · TOLEDO TULSA · YOUNGSTOWN

UNITED STATES STEEL



(*Continued from page 278*)

c. Any research and/or development contracts.
f. Any data including any photograph, sketch or plan concerning first models of weapons or equipment, outstanding production achievements or performance of items.
g. Material for shipment to allied governments.
h. Any classified information.

3. A subcontractor may also release information subject to Paragraph 1 & 2 above, provided he does *not*:
   a. Indicate he is a sole supplier.
   b. Indicate the percentage of the prime's requirements he provides in terms of quantity or dollar value.
   c. Reveal rates of production or deliveries.
4. Prime contractors are requested to bring the contents of this memorandum to the attention of their subcontractors.

In case of doubt as to the releasability of information, contractors or subcontractors should take the matter up with the Public Information Officer of the district concerned.

AIR CONDITIONING SHOW CHICAGO, JANUARY 26-30

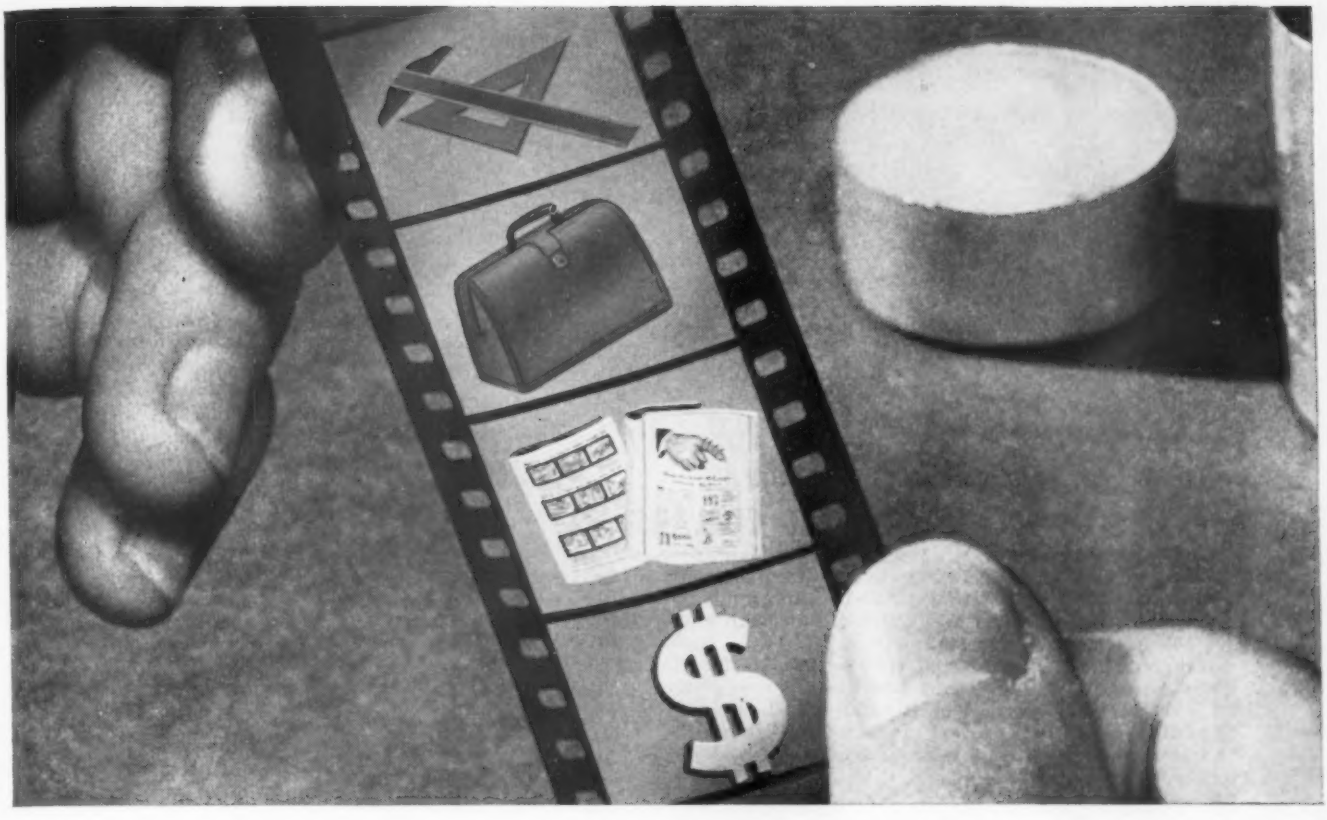
The 11th International Heating and Ventilating Exposition is scheduled to be held at the International Amphitheatre in Chicago, January 26-30, under the auspices of the American Society of Heating and Ventilating Engineers in conjunction with its 59th annual meeting. Every class of heating, ventilating and air conditioning equipment will be presented in the exhibits.

POWER CABLE GIVEN 85 C COPPER TEMPERATURE RATING

Super Coronol power cable for service up to and including 8000 volts is now rated at 85 C copper temperature according to B. F. Ilsley, manager of General Electric's Wire and Cable Department.

Mr. Ilsley stated that he believes that this is the highest rating ever announced for a solid dielectric power cable in this voltage range. The new temperature ratings mean that Super Coronol cables are now capable of carrying up to 12 per cent more power, continuously, than old-style ozone-resistant rubber-type compounds rated 75 C maximum.

This higher rating is based on life test of many cables taken from regular production. One of the most impressive tests involves cable held continuously under load at a copper temperature of 121 C. This test is now nearing the end of its fifth year and both physical and electrical properties have been stable since the 20th month. In view of such results, G-E wire and cable engineers believe that the new rating is still extremely conservative. The new rating can also be safely applied to all Super Coronol cable now in service at potentials up to 8000 volts. For voltages above 8000, ratings continue to be based on 80 C.



How a top P. A. pictures value

IF price were the only consideration in figuring value, a top P. A. could buy all his component parts by ordering from a catalog and turn the job over to a clerk. Instead, a top P.A. might get a true idea of value by looking at the symbols on the film strip above. Here's what they mean:

Engineering service is represented by the T-square and triangle. A P.A. wants the component parts he buys to be backed by a complete engineering service.

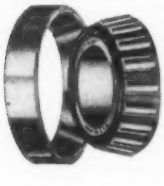
Sales are represented by the brief case. He wants top quality component parts that will increase the saleability of his company's product.

Public acceptance is represented by the advertisements. He wants component parts widely accepted by the public.

Price, of course, is represented by the dollar sign. A P.A. is always conscious of cost. Still, he knows that price alone is outweighed by the three other factors—quality, service, public acceptance. This formula shows why:

$$Value = \frac{quality + service + public\ acceptance}{price}$$

There's no question about your best bet in tapered roller bearings. Timken® bearings have the highest quality, the best engineering service, the widest public acceptance. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ont. Cable address: "TIMROSCO".

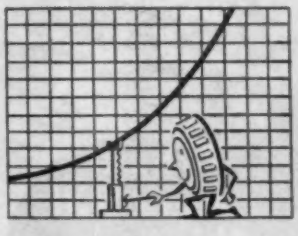


TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS

P.A. Notes:



JACKS SALES. Recognized as first choice for original equipment throughout industry, Timken bearings in your product will help sell it.

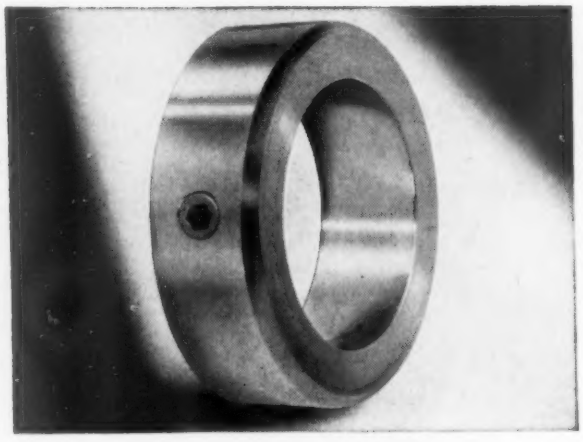
5850 SIZES. No matter how many types and sizes of tapered bearings you need, you can get them all from one dependable source—the Timken Company. The Timken Engineering Journal lists 5850 sizes—26 different types.





CONTINUOUS QUALITY. At every step in manufacturing, from steel melting to final bearing inspection, the Timken Company maintains rigid control to insure uniform high quality.

NOT JUST A BALL NOT JUST A ROLLER THE TIMKEN TAPERED ROLLER BEARING TAKES RADIAL AND THRUST LOADS OR ANY COMBINATION



Standardize on standard
HALLOWELL SOLID STEEL COLLARS

It's fast and easy to buy standardized, precision-made HALLOWELL Solid Steel Collars from your distributor's stocks. Just pick up the telephone and place your order.

42 stock sizes—for shafts from 3/16" to 3" inclusive—are positioned on the shafts by UNBRAKO Self-Locking Set Screws, the screws that won't work loose.

Write for descriptive literature and the name and address of your nearest HALLOWELL Industrial Distributor. STANDARD PRESSED STEEL CO., Jenkintown 31, Pennsylvania.

HALLOWELL
POWER TRANSMISSION DIVISION **SPS**
JENKINTOWN PENNSYLVANIA

...make gloves last
3 to 5 times LONGER!



THIS IS WHAT "WASH-RITE" DOES...

Throw *all* your dirty, worn leather, rubber or cotton gloves in our steel drum. Ship to us. We correctly clean, sterilize, *COMPLETELY REPAIR*, sort, reshape, pair and ship them back to you as serviceable as new. Depending upon the gloves and their usage, gloves are being re-claimed by us 3 to 5 times. We specialize only in laboratory controlled re-claiming of rubber, leather and cotton gloves, aprons and clothing. *Write for literature.*

10 Years of Proven Service

YOUR GOODS FULLY INSURED . . . WORK GUARANTEED

. . . it costs you nothing to find out. SEND US A FREE TRIAL ORDER

Wash-Rite Company, Inc.
1412-26 CORNELL AVENUE · INDIANAPOLIS 2, INDIANA

N. P. A. NOTES

Ralph S. Howe has been named Special Assistant to the Defense Production Administrator on matters concerned with machine tools and long lead time production equipment. Mr. Howe is a director of the National Machine Tool Builders Association and chairman of its procurement subcommittee of the Government relations committee.

NPA announces that NPA Hearing Commissioner Harrison W. Ewing in Cleveland has issued a suspension order reducing allocations and allotments of aluminum to The Buckeye Aluminum Co., of Wooster, Ohio, by 71,000 pounds during the period beginning October 1, 1952 and ending December 31, 1952. After a public hearing in Cleveland the Hearing Commissioner found that the firm had violated Order M-47-A by using that amount of aluminum in excess of the quantities permitted during the third quarter of 1951.

Philip E. Hoffman, Hearing Commissioner, NPA, in New York, has ordered that Star Fastener, Inc., Brooklyn, N. Y., repay in allocations and allotments the quantities of controlled materials unlawfully used between December 1, 1951 and June 30, 1951. In issuing a Suspension Order against the corporation and its four officers after a public hearing, the Hearing Commissioner found that the firm had violated NPA orders and regulations by using 50,930 pounds of aluminum and 13,993 pounds of brass mill products in excess of the amounts permitted.

Kenneth C. Davis, a University of Minnesota law professor and a former special assistant to the Attorney General, has been named a Hearing Commissioner for the NPA, to preside at public hearings into charges of violations of NPA orders and regulations in the Minneapolis area.

Textile field: Removal of the last emergency control in the textile field was announced by NPA, in reporting the revocation of its high tenacity rayon yarn order, Regulation M-13. Other NPA textile orders previously revoked are: M-23, Carded Cotton Sales Yarn and M-53, Cotton Duck; M-56 which reserved waterfowl feathers for military use and stockpiling; and M-58, Binder and Bailer twine, which was inventory control.

Frederick J. Moreau, Hearing Commissioner of the NPA, has issued a suspension order directing that all allocations, allotments and priorities of controlled materials be withdrawn and withheld from the Delman Corp., Des Moines, Ia., and its president, for the period from October 1, 1952, to March 31, 1953. After a public hearing in Des Moines, Commissioner Moreau found that the company and its president violated NPA Order M-7 in accepting and using more than 10,000 pounds of aluminum in ex-

(*Please turn to page* 284)

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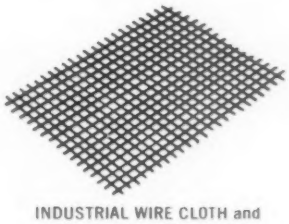
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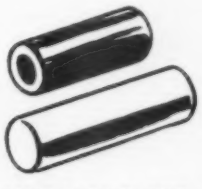
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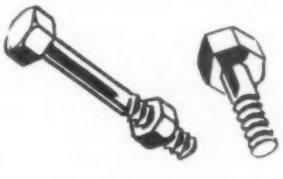
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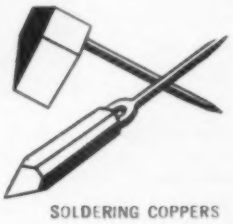
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BRASS COTTER PINS
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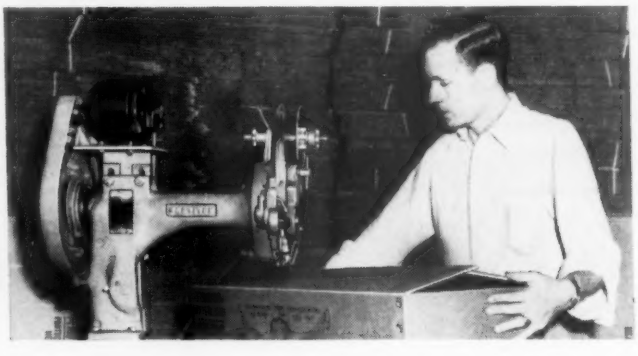
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ALL TYPES OF STAPLES APPLIED BY MACHINES

(*Continued from page 282*)

cess of the amount allowed during the first half of 1951; violated CMP Regulation 1 during the fourth quarter of 1951 and the first quarter of 1952 in obtaining and accepting delivery of more than 22,000 pounds of aluminum beyond its regular authorized production schedules supplemented by alleged ratings from the Ford Motor Co. under its symbol V5-x; violated Order M-12 in that they used 16,695 pounds of copper in excess of permitted quantities; violated Regulation 1 during the last quarter of 1951 and the first and second quarters of 1952 by placing authorized controlled material orders for 102,364 pounds of aluminum when lawfully entitled to order only 19,953 pounds, although most of these orders were subsequently cancelled.

DIVERSION OF CANADIAN ALUMINUM TO UNITED STATES

At the request of the United States Government, the British Government and the Aluminum Company of Canada have agreed to an arrangement which will supply this company with an additional 77 million pounds of aluminum for delivery during December and the first two quarters of 1953. This will be in addition to the metal that the Aluminum Company of Canada already has allocated to the United States market. Samuel W. Anderson, Deputy Administrator for Aluminum, Defense Production Administration, said that this action by the British Government and the Aluminum Company of Canada will be of substantial help in relieving the difficulty being experienced by industrial users because of loss of domestic aluminum production caused by the current hydro power shortages. He cautioned aluminum users against assuming that any aluminum beyond that currently authorized for manufacturing would be provided and pointed out this additional aluminum will assist in avoiding the accumulation of a large backlog of unfilled orders.

BITUMINOUS COAL PRODUCTION

Bituminous coal production in the week ending November 1 is estimated by the Bureau of Mines as 9,175,000 net tons in comparison with 2,150,000 the previous week when the UMWA was on strike, and 11,335,000 for the week ended November 3, 1951. Cumulative output in the first ten months of 1952 approximate 382,595,000 net tons as compared with 446,030,000 in the corresponding period of last year.

Although production of bituminous in September exceeded consumption and exports by 8.8 million tons, stocks on October 1 are reported as 83,298,000 net tons or 2,060,000 tons greater than one month previous. The current figure, as reported, is the largest tonnage on hand since December 1942.

Industrial stocks on October 1 totalled 81,492,000 net tons or 9.6% over the same date a year ago, with all classes of industrial users showing substantial gains except Class I railroads.



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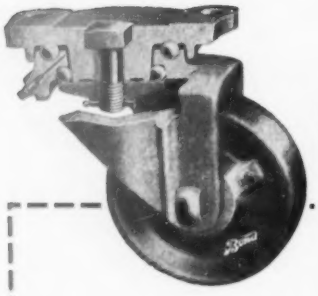
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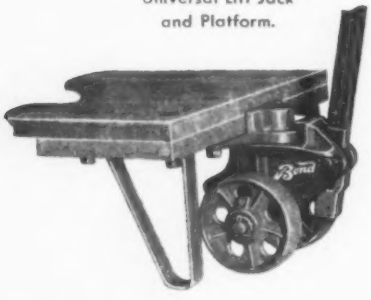
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NEW COMMERCIAL STANDARD FOR WOOL FELT

In a cooperative undertaking joined in by manufacturers, distributors and users of wool and felt, the National Bureau of Standards and the Department of Commerce, a commercial standard for wool felt has been established in the United States for the first time. The new standard, on which The Felt Association, New York, has been working for a number of years, has just been published by the Government as Commercial Standard 185-82, titled "Wool Felt" and is being distributed by the Department of Commerce.

Primary purpose of the new standard is to establish standard methods of test, rating, certification and labeling of wool felt, and to provide uniform bases for fair competition. While adherence to the standard is voluntary, if reference is made to it in contracts, labels, invoices or advertising matter, the provisions of the standard are enforceable through the usual legal channels as a part of the sales contract. To date over 100 manufacturers and organizations have announced their acceptance of the new standard, including felt manufacturers, furniture makers, hospitals, department stores, laboratories, piano manufacturers and government agencies.

Types Covered

The newly promulgated standard covers the following types of wool felt:

1. Mechanical Roll Felt, generally in roll form and suitable for mechanical use;
2. Sheet Felts, customarily fabricated in sheets;
3. Roll Felts, for the apparel and decorative trades, generally in colors.

As defined by the standard, felt is "a fabric built up by the interlocking of fibers by a suitable combination of mechanical work, chemical action, moisture and heat, without spinning, weaving or knitting. It may consist of one or more classes of fibers; wool, reprocessed wool, and/or reused wool, with or without admixture with animal, vegetable, and synthetic fibers."

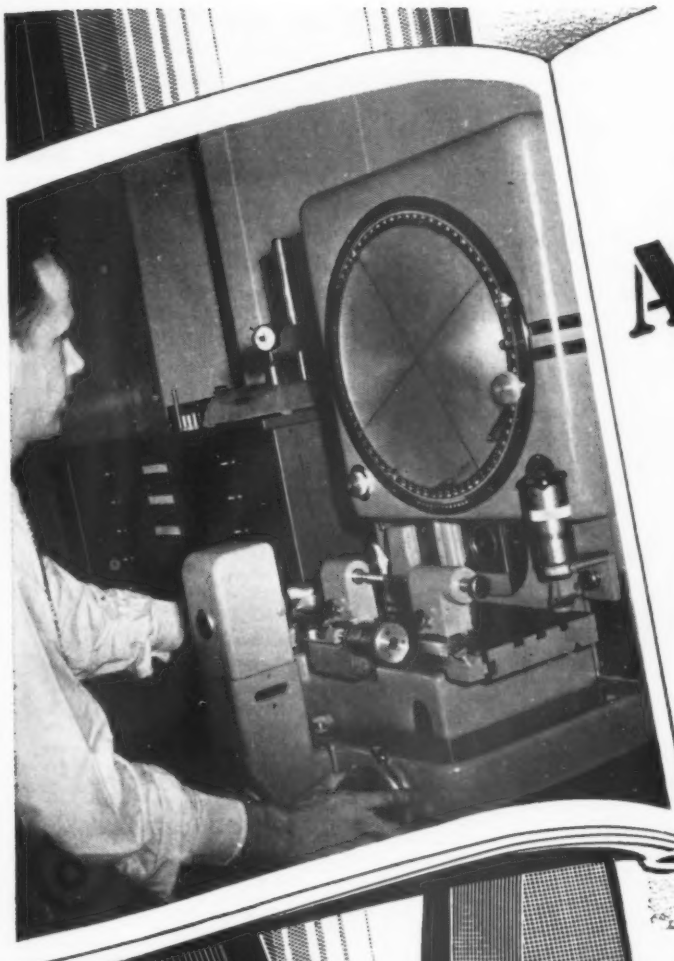
Under Mechanical Roll Felts, the standard covers five felt densities in five types ranging in density from 8 pounds to 18 pounds per square yard of 1-inch nominal thickness. These include the full range of mechanical felts known in the trade by the following designations: Laundry, Backcheck, Ball-bearing felt, Extra-firm pad, Lining, Firm pad and Soft pad.

Sheet Felt

In the Sheet Felt category the standard covers five densities of felt in four different types ranging in weight from 12 pounds to 32 pounds per square yard of 1-inch nominal thickness. The four distinct types of sheet felt are:

1. Fine Spanish, composed of highest quality white wools, predominantly U. S. Standard 64's, processed to be free from vegetable, paint and other foreign matter;
2. Spanish, composed of select un-

(*Please turn to page* 288)



THE AMERICAN STORY

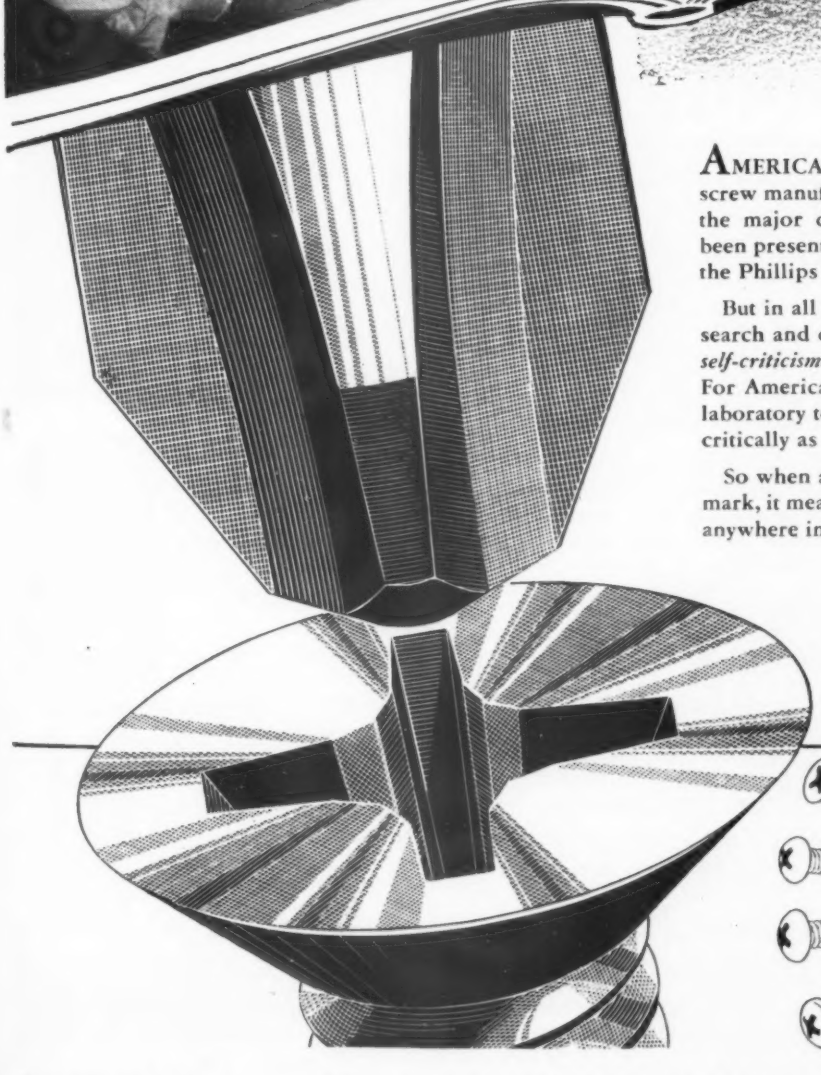
CHAPTER 3:

Self-Criticism

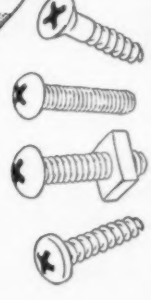
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But in all this time, American has stayed ahead in research and development because of one basic thing . . . *self-criticism*. And that means *constructive* self-criticism. For American was the first to establish an engineering laboratory to put the "Eagle-eye" on its own product as critically as on its competitors.

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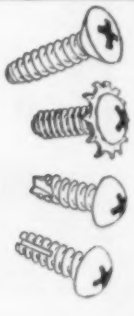


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(*Continued from page* 286)

bleached wools, usually U. S. Standard 58's, largely free from vegetable and other foreign matter;

3. Mexican, composed of wool, U. S. Standard 56's; and

4. Coarse Mexican, a type of sheet felt made from wool, U. S. Standard 50's or coarser.

At least ten kinds of roll felts for the apparel and decorative trades are included in the new standard. These felts vary in width, wool content, weight and thickness depending on end use and generally are designated in the trade as follows: Athletic pad, Coat front, Cushioning and lining, Decorative (which includes millinery, lettering, pennant, applique and upholstery felts), Lining, Slippers, Collars, Insulation, Orthopedic and Surgical felts.

Concurrent with the issuance of the new commercial standard, The Felt Association has designed a manufacturers' seal which can be used on felt products to indicate compliance with the standard. The seal carries the following statement: "The manufacturer declares that this felt meets all requirements of commercial standard CS185-52 as issued by the U. S. Department of Commerce."

NPA TO ANALYZE PROBLEMS OF DISTRIBUTION

H. B. McCoy, Deputy Administrator of the NPA and Acting Director of the newly formed Office of Distribution, U. S. Department of Commerce, told meeting of the Office Equipment Manufacturers Institute, that the proposed functions planned for the Office of Distribution would, at no additional cost to taxpayers, provide business with long needed information for use in meeting marketing and distribution problems.

"The work we will undertake in the Office of Distribution, with guidance and advice from businessmen themselves, will be in the long run one of the most useful things that the Government can do for the welfare of business," Mr. McCoy said.

The new distribution office, he explained, will have as main objectives: 1) to serve as a focal point between government and distribution industries for the exchange of advice and information; 2) to furnish the business community with distribution and marketing data, cost analyses, and recommendations; and 3) to develop from all government sources types of information required for specific kinds of business.

COLOR MOTION PICTURE ON FUTURE OF ALUMINUM

"Take a Look at Tomorrow" is the title of a new 24 minute motion picture in color examining the future of aluminum, announced by Kaiser Aluminum & Sales Inc., 1924 Broadway, Oakland, Calif. The film tells the story of aluminum from mine to metal, fabrication of aluminum into consumer products and significant new applications of the metal.

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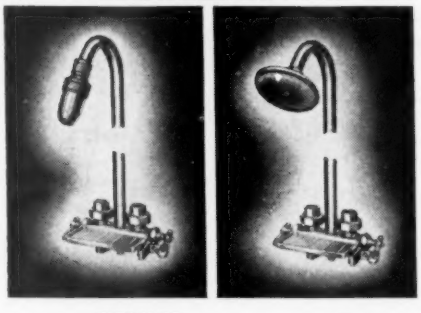
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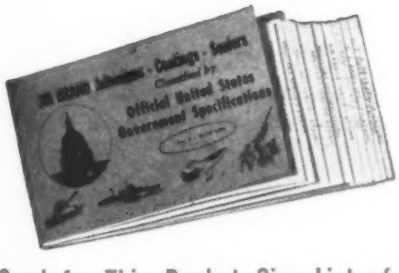
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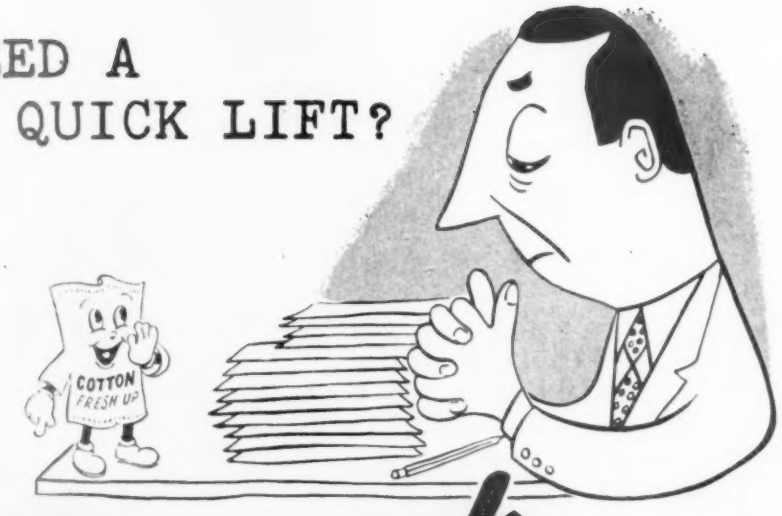
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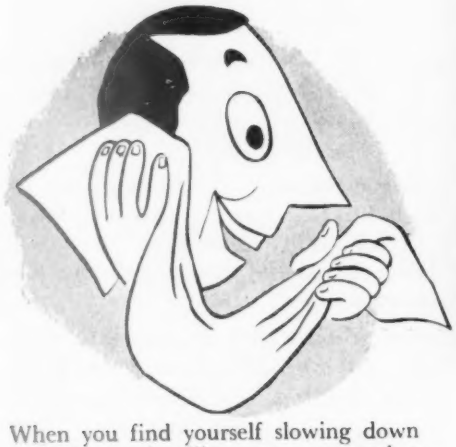
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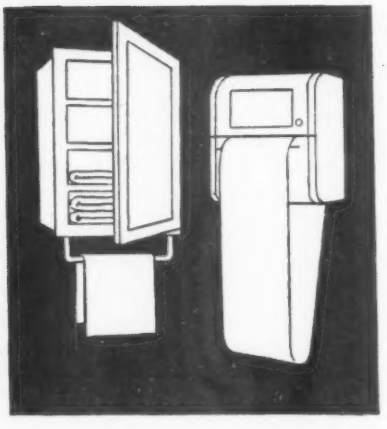
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22 W. MONROE ST., CHICAGO, ILL.

SEEK SUBSTITUTES FOR DIAMOND BORT

Acceleration of a program to develop substitutes for diamond bort in grinding processes is essential to defense mobilization and the national security, and every feasible effort will be made to speed up this program, the NPA announces. Several firms are testing substitute processes particularly, (1) electrolytic, (2) electrosparking or arcing, and (3) ultrasonic, NPA said, but such tests must be stepped up for a definite determination of how, and to what degree, these and other processes can be substituted for diamond wheels in grinding. About 65% of the diamond bort imported annually is consumed in finishing tungsten carbide single-point cutting tools, chip breakers, milling cutters and broaches. Crushing bort and diamond powder are in short supply.

LOCK WASHERS PACKED IN COIN ROLLS

A new method of packaging lock washers in coin rolls similar to those used by banks in packaging coins, known as the "Coin Pak", is announced by the Mellowes Company, Milwaukee 12, Wis. The new packaging makes it easier to issue lock washers from stock room, eliminates the mixing of sizes which often happens in open stock bins, and saves time on the assembly line or work bench because washers can be placed over pins or spindles before removing the wrap. M-C lock washers in the new Coin Pak are put up in the four popular sizes—No. 10, 1/4", 5/16" and 3/8".

ISSUE SUSPENSION ORDER AGAINST JERSEY CITY COMPANY

James M. Fawcett, hearing commissioner of the National Production Authority, recently issued a suspension order directing that the Warner Manufacturing Corp. of Jersey City, N. J. be prohibited from acquiring, using or disposing of controlled materials until after June 30, 1953, the expiration date of the present Defense Production Act. The firm manufactures aluminum storm doors and windows. After a public hearing, Commissioner Fawcett found that the Corporation and three of its officers had illegally used a total of 1,461,165 pounds of aluminum.

Specifically, the suspension order: Directs NPA to withhold and withdraw from the corporation all priority assistance until June 30, 1953; withdraws all allocations and allotments of controlled materials and materials under control of NPA from the corporation and its named officers until June 30, 1953; withdraws the privilege of self-certification with respect to controlled materials from the corporation and its named officers until June 30, 1953; prohibits the corporation from acquiring, using or disposing of controlled materials and materials under control of NPA until June 30, 1953.

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Sleek, powerful, compact — this new No. 555 is the most remarkable, most versatile electric tool ever developed. Just try it. Once you see the amazing number of jobs it does — and the speed with which it does them — you'll agree that here is a tool with capabilities out of all proportion to its size.

When torque resistance is low, it drives at a continuous 1900 r.p.m. Then, when resistance rises, it automatically shifts to impact action. 2000 powerful blows per minute exert up to 100 ft. lbs. torque — ample to handle threaded parts as large as 5/8" diameter under favorable conditions.

With its rugged, powerful motor, it weighs only 6¾ lbs. It is easily controlled with one hand, quickly reversible, and built throughout for long, hard service. Write for full information, or better yet, let us arrange a demonstration. See for yourself how this heavy-duty, high-speed tool saves time and money on countless jobs.

- **Runs, sets, loosens and removes nuts and studs**
- **Taps and threads**
- **Extracts broken studs and bolts**
- **Drives screws**
- **Drills, reams, drives hole saws**

MILLERS FALLS COMPANY, Greenfield, Mass.

MILLERS FALLS TOOLS
SINCE 1868 ®

The Mark of Superiority

SEND FOR BULLETIN 564





5 Important Reasons why PHEOLL SCREWS • BOLTS • NUTS Produce More Profit For You

MAINTAIN PEAK OUTPUT with Pheoll precision-made screws, bolts and nuts—they will speed your assembly work and improve product appearance.

INSURE PRODUCT PERFORMANCE with Pheoll quality screws, bolts and nuts—standardize on these dependable industrial fasteners.

HUGE MANUFACTURING FACILITIES assure rapid production of both standard and special fasteners.

SINGLE SOURCE OF SUPPLY for screws, bolts and nuts in different sizes, types and metals.

OVERNIGHT DELIVERY to principal cities from centrally-located Pheoll factory and warehouses.

FACTS ABOUT Pheoll YOU SHOULD KNOW

- One of the nation's leading producers of industrial fasteners.
- Pheoll products are widely used in part assembly when quality is of prime importance.
- Men who produce Pheoll industrial fasteners are highly trained and experienced craftsmen.
- All products are manufactured under rigid quality control standards.
- Constant product inspection from laboratory metal analysis, through production and final finish is your assurance of precision made, trouble-free screws, bolts and nuts.



Write for this free Bulletin

PHEOLL MANUFACTURING COMPANY SCREWS BOLTS NUTS

INFORMATION ON PURCHASES INVOLVING MSA FUNDS

Small business concerns will now be able to obtain information on foreign and domestic purchases involving Mutual Security Agency funds from field offices of the Small Defense Plants Administration, according to SDPA Administrator John E. Horne.

Arrangements have been made for all SDPA field offices to receive MSA summaries, circulars, and other information regarding purchases by that agency. This information will be passed on by SDPA field offices to small firms expressing an interest in the MSA program.

Mr. Horne said this is another step in SDPA's program of collaboration with all Government agencies in disseminating information that will benefit both small business and the Government.

MSA publications which will be provided regularly to all SDPA field offices include: "Memo for Small Business," "Small Business Circular," and "Contract Clearing House Service," as well as appropriate portions of the MSA "Field Counselor Roster,"

These publications contain information on the basic procedures for contracting with foreign countries, complete descriptions of items to be purchased, quantity involved, specifications, shipping instructions, and names and addresses of purchasing offices which small business concerns must contract.

SDPA field offices are also in a position to refer small business firms to the nearest MSA Field Counselor for additional information not included in the material furnished to SDPA.

* * *

BURLAP IN PLENTIFUL SUPPLY

United States importers who order burlap from India as well as the U. S. bag industry and American consumers, can all now be assured of getting more value for their money than they have ever received since 1946, according to W. B. Moncur, chairman of the Indian Jute Mills Association.

Not for six years have burlap prices been as favorable for American users of burlap as they are at the present time. Mr. Moncur assured U. S. burlap consumers of a steady continuation of supplies. New York quotations of burlap have dropped in half over the course of this year. Prices, for example have dropped from 27.5 cents a yard in the key 10-ounce weight in February to less than 14 cents a yard now, about half the earlier price.

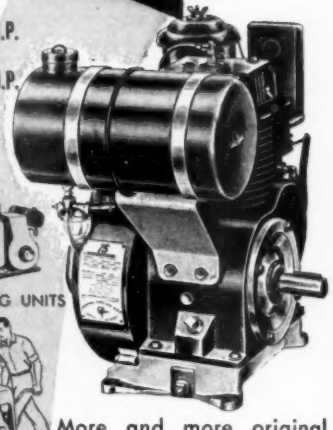
As head of a goodwill mission from India, which is visiting the United States for the purpose of promoting closer contact between American burlap consumers and the Indian manufacturers, Mr. Moncur stressed healthy trade ties between the two countries as the best way to build effective friendship between them.

"Burlap can be called the mutually beneficial key to Indian-U. S. trade," he said. "India is the world's greatest manufacturer of burlap and the United States

(*Please turn to page* 294)

GLADDEN ENGINES provide reliable power when and where you need it . . .

MODEL 75-7 H.P.
MODEL 50-5 H.P.
MODEL 40-4 H.P.



PUMPING UNITS



POWER PLANTS

More and more original equipment manufacturers are specifying Gladden engines. They find no other engine performs so well . . . lasts so long . . . and saves so much in time and money.



NOW OPERATING OVER 3000 POWER BUGGIES AND POWER CARTS IN UNINTERUPTED SERVICE



VIBRATORS

Gladden engines are being used exclusively by two large Western manufacturers on their power equipment. There is a reason for this. They work longer hours and do more jobs for a lower investment than any other gasoline engine on the market today.



COMPRESSORS

Gladden engineers will adapt these engines to special installations or requirements upon request . . .

NEW KANSAS CITY BRANCH, 10 West 19th Street, Kansas City 8, Missouri, PROVIDES RAPID SALES AND SERVICE.

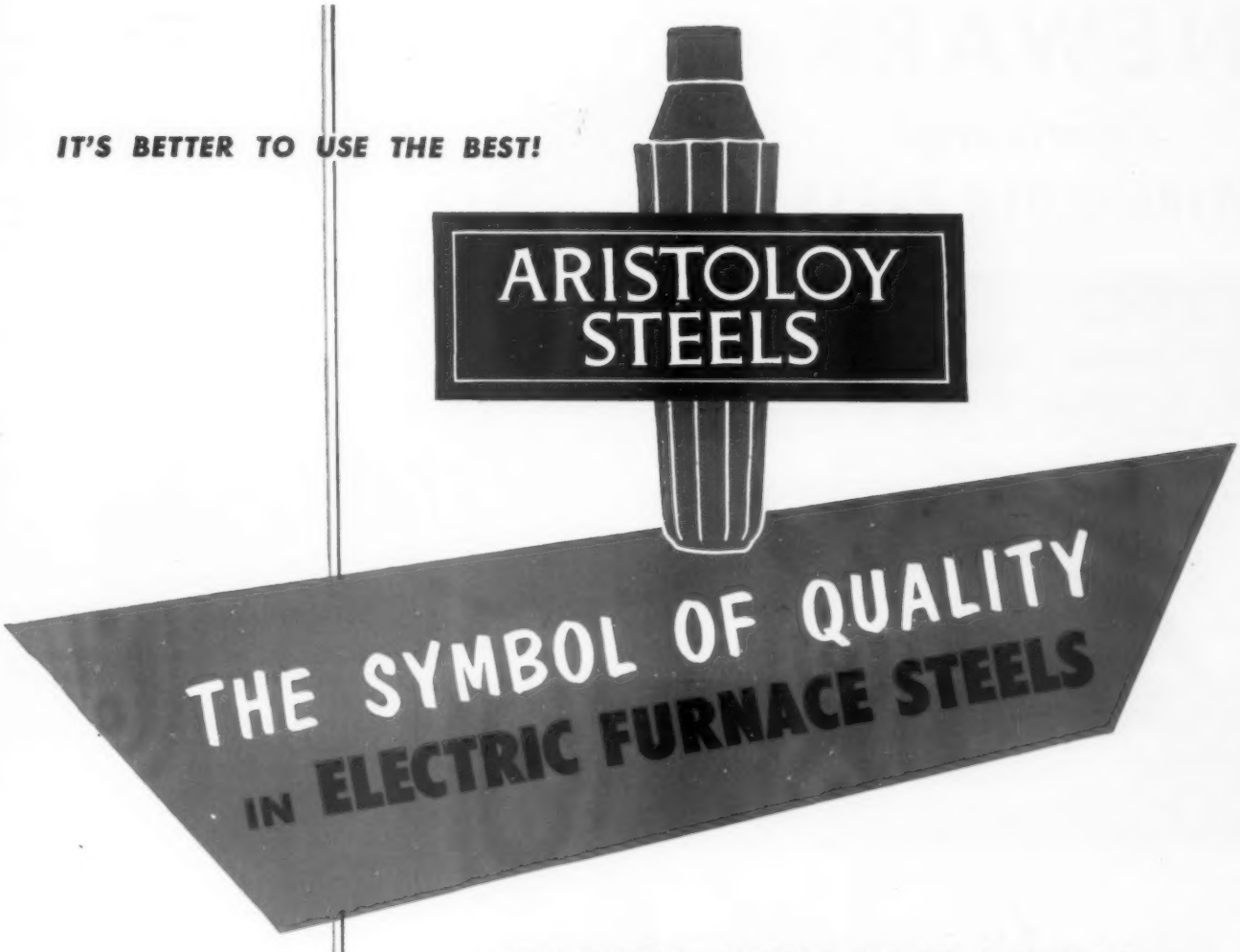
For further information write

GLADDEN PRODUCTS CORPORATION

Now In the 33rd Year of Engine Building

635 Dept. 100 West Colorado
Glendale 4, California

IT'S BETTER TO USE THE BEST!



STANDARD STRUCTURAL ALLOY
BEARING QUALITY • ALLOY TOOL
SPECIALTY • NITRALLOY
CARBON TOOL
AIRCRAFT QUALITY

Hot Rolled	Forged	Annealed
Heat Treated	Normalized	Straightened
Cold Drawn	Machine Turned	Centerless Ground

sell your scrap

COPPERWELD STEEL COMPANY
WARREN, OHIO

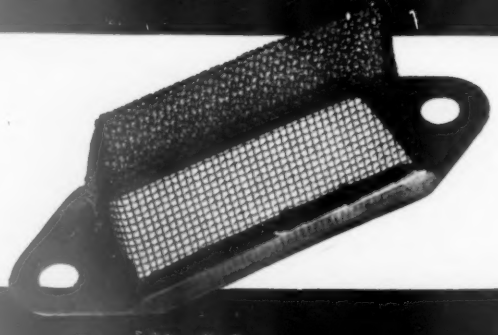
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P. O. Box 1633, Tulsa, Oklahoma
117 Liberty Street, New York, New York
803 Loew Building, Syracuse, New York
3104 Smith Tower, Seattle, Washington
325 W. 17th Street, Los Angeles 15, California
1140 Lockwood Drive, Houston 20, Texas
528 Fisher Building, Detroit, Michigan
Monadnock Building, San Francisco 5, Calif.
1578 Union Commerce Building, Cleveland, Ohio
7251 General Motors Building, Detroit, Michigan

NEWARK

Fabricated
WIRE CLOTH PARTS



Available — a well-equipped plant with highly experienced fabricators.



Available — mesh cloth and space cloth made in our own plant.



All under one roof

Do you require parts made with one or more pieces of mesh cloth or space cloth — anything from 4 inch openings down to 325 mesh (105,625 holes/sq. in.)?

Our experienced fabricating service should be of value. We are in position to handle volume order business and, if desired, will be glad to help in designing the part requiring the metallic cloth. We know how to insert and fasten metallic cloth to get best results. We carry many standard sizes of wire cloth in stock. We have ample loom facilities to weave special cloths if necessary. We can handle any wire of any malleable metal.

This fabricated parts division of our business has grown by leaps and bounds. We have had many repeat orders. It could be due to the quality of wire cloth used and the care with which this cloth is assembled into the parts being fabricated.

NEWARK for ACCURACY

Ask for General Catalog "D"

Newark Wire Cloth COMPANY

351 VERONA AVENUE • NEWARK 4, NEW JERSEY

Philadelphia 3, Penna. 1311 Widener Bldg. | San Francisco, Calif. 3100 19th St. | Chicago, Ill. 20 N. Wacker Dr. | New Orleans, La. 520 Maritime Bldg. | Los Angeles, Calif. 1400 So. Alameda St. | Houston, Texas P. O. Box 1970

(*Continued from page* 292)

the greatest consumer. The $90,000,000 worth of burlap Calcutta sold you last year was useful in India's purchase of about $126,000,000 worth of your cotton."

Mr. Moncur reported that the combined 1952 Pakistan-India jute crop is the largest in the past ten years.

"Our combined crop this year will be 12.5 million bales," he said. "The average for the ten years previously was only 7.16 million bales."

Mr. Moncur said that the importance of the United States market, and the needs of the American consumer, were being taken fully into account by both the Indian Government and the Calcutta burlap mills. The problem of getting Pakistan jute had been alleviated and the Indian mills now had no difficulty in obtaining unlimited qualities of the raw product from Pakistan.

SDPA ISSUES PAMPHLET ON OBTAINING DEFENSE CONTRACTS

Issuance of an informational pamphlet for small businessmen who are interested in obtaining defense contracts, was announced by the Small Defense Plants Administrator. Title of the pamphlet is "Joint Determinations on Defense Procurement." It describes the program under which SDPA and the military departments jointly agree to earmark certain proposed purchases of goods or services for award exclusively to small business concerns. Copies of the pamphlet are available upon request from SDPA's Office of Administrative Services, Washington 25, D. C., or any of its field offices.

RECOMMEND REVOCATION OF ORDER M-36 ORDERS FOR PAPER

The Pulp, Paper and Paperboard Industry Advisory Committee has recommended to the NPA that the agency revoke its Order M-36 — Government Orders for Paper. The order requires paper and paperboard manufacturers to establish reserves of designated grades of paper and paperboard according to specific percentages of their monthly production to fill Government Orders. Several committee members recommended that NPA should simultaneously exempt paper and paperboard from requirements of NPA Regulation 2 (Basic Rules of the Priorities System) by eliminating paper and paperboard from DO provisions of the regulation.

NPA told the committee that Government orders for paper amounted to 2.5% of demand during June 1952 and 1.8% during October 1952. DO rated orders for paper were only 0.5% of the total demand during October. Sulphur supplies are adequate. Pulpwood receipts at pulp mills have been in excess of production, month-end inventories being increased about 20%. Wood pulp production amounted to 12,253,000 tons in the first nine months of 1952 as against 12,333,000 tons for the comparable period of 1951.

TODAY

—complete output of the SONOTONE-designed Sintered-Plate Nickel Cadmium storage battery is consigned to the United States Government exclusively.



TOMORROW

— this great new battery — developed and now being produced by SONOTONE—will be made available to American industry for civilian use. Inquiries regarding its availability for defense contracts and eventual commercial use are invited.

the battery the world is waiting to use

BATTERY DIVISION

SONOTONE CORPORATION

Elmsford, New York



PATTERN FOR PERFECTION . . .

The best of materials, strict standards of workmanship, the finest tools—this is the *real* mechanic's pattern for perfection. Naturally, *you*, knowing mechanics, quickly recognize the work of others who measure accomplishment by the same standards.

Bonney wrenches fit this pattern of perfection. That is why mechanics call them America's finest—unmatched for lightness, strength, balance, and precision.

Bonney wrenches are the pride of the men who make them... the pride of the men who use them. When you buy wrenches, buy Bonney.

BONNEY TOOLS

The skilled mechanic whose constant concern is with this pattern for perfection is exemplified in the men who produce the versatile tractors made by Buda, Case, Allis-Chalmers, Caterpillar, John Deere, Minneapolis-Moline, Oliver, and others.

BONNEY FORGE & TOOL WORKS • ALLENTOWN, PENNSYLVANIA

ALLOY SCRAP REPORTS AMEND DIR. 1, NPA ORDER M-20

Firms are permitted to report alloy scrap inventories by their locations in individual plants, rather in an accumulated inventory for the firm, under an amendment to Direction 1 of NPA Order M-20 issued by the National Production Authority.

The definition of "person" is expanded to read: "A person who keeps separate inventory records for any separate operating or producing unit shall treat each such separate operating or producing units as a separate person for the purpose of this direction, unless NPA otherwise directs or permits upon application of such person."

The amendment also revises line 5 of List A of M-20 as follows: "Stainless steel 12 to 22 percent nickel types" and line 7 of List A as follows: "Stainless steel 9 to 12 percent nickel plus columbium or columbium-tantalum types."

SDPA BOOKLET DESIGNED TO AID SMALL PLANTS GET DEFENSE SUBCONTRACTS

For many small plants, subcontracting offers the most practical means for participating in defense orders, according to the Small Defense Plants Administration, 1337 E. Street, N. W., Washington, D. C., and SDPA has issued a leaflet entitled "Subcontracting for Small Plants" which is designed to aid small firms obtain defense subcontracts. It gives practical answers to the questions that small manufacturers might have about obtaining such contracts.

ADDITIONAL STEEL FIRST QUARTER 1953

To assure maximum steel production and to meet the most pressing needs of industries for first quarter 1953 steel, the Defense Production Administration approved the distribution of an additional 1,480,000 tons of carbon steel products.

The distribution is being made on the advice of the Iron and Steel Division, National Production Authority, and is based on a recommendation of NPA's Steel Products Industry Advisory Committee. In its October 27 meeting, the committee estimated that an additional 1,480,000 tons of certain finished steel products would be available through the first quarter of 1953.

This amount has been applied against appeals for 3,200,000 tons of the specific steel products available. The quantities of tin mill products requested were just slightly more than the 600,000 tons available. The other requests, totaling about 2,550,000 tons, were far in excess of the quantities available. NPA's Motor Vehicle Division, for example, will receive 336,950 tons of five different steel shapes and forms, as against stated requirements of 848,516 tons.

The 1,480,000 tons include 100,000 tons of small hot rolled bars (1" and under), 180,000 tons of drawn wire, 600,000 tons

(*Please turn to page* 298)



Six strong arms and "true"

Six powerful arms of steel grip and turn the crankshaft—send power from pulsing pistons surging through the mighty Ford truck. These connecting rods are machined to tolerances of 3/10,000 of an inch—diamond-bored for precision—dynamically balanced to 1/10th of an ounce for peak performance. That's precision production—and for such exacting work in great volume, Ford Motor Company depends on Lycoming.

Lycoming stands ready to assist you—whether you have "just an idea" that needs developing, a problem in the blueprint stage, or a finished metal product that needs speedy fabrication. Long famous in the metal-working field, Lycoming continues to meet the most exacting and diverse requirements, both industrial and military. *Whatever* your problem—look to Lycoming!

Lycoming's 2½ million feet of floor space, its more than 6,000 machine tools, and its wealth of creative engineering ability stand ready to serve your needs.

For precision "arms" —connecting rods that perfectly pass power along to a truck's wheels— Ford Motor Company depends on Lycoming precision production.



AIR-COOLED ENGINES FOR AIRCRAFT AND INDUSTRIAL USES • PRECISION-AND-VOLUME MACHINE PARTS • GRAY-IRON CASTINGS • STEEL-PLATE FABRICATION

LOOK TO **LYCOMING** FOR RESEARCH FOR PRECISION PRODUCTION

LYCOMING-SPENCER DIVISION, WILLIAMSPORT, PA.
BRIDGEPORT-LYCOMING DIVISION, STRATFORD, CONN.

AVCO MANUFACTURING CORPORATION



Lycoming-Spencer Division
AVCO Manufacturing Corp.
652 Oliver Street
Williamsport, Pa.

Please send me further information on Lycoming's varied abilities and facilities.

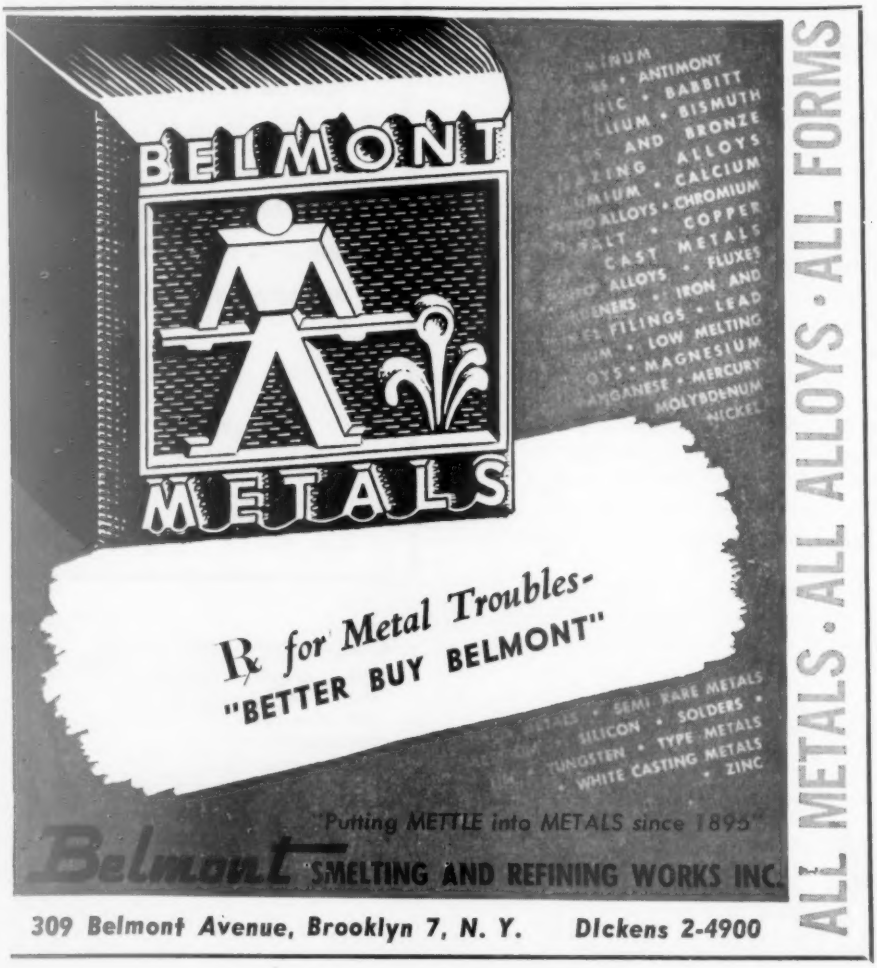
Name_____

Firm_____ Title_____

Address_____

City_____ Zone____ State____





(*Continued from page 296*)

of tin mill products, 100,000 tons of hot rolled sheet, 400,000 tons of cold rolled sheet, 50,000 tons of galvanized sheet, and 50,000 tons of cold rolled strip.

DPA officials pointed out that the supplemental allotment authority given each claimant agency and individual metal user will specify the amount of each type of steel product granted. This is being done in order to utilize the open capacity and to prevent this additional allotment authority being used to obtain scarcer steel forms and shapes.

DPA also said that NPA's Iron and Steel Division will make another review of steel mill order boards and advise DPA before December 10 of any further available open space. If additional open capacity exists, DPA will make another supplemental distribution for first quarter use.

ANSWERS TO "PRODUCING FOR THE NAVY"

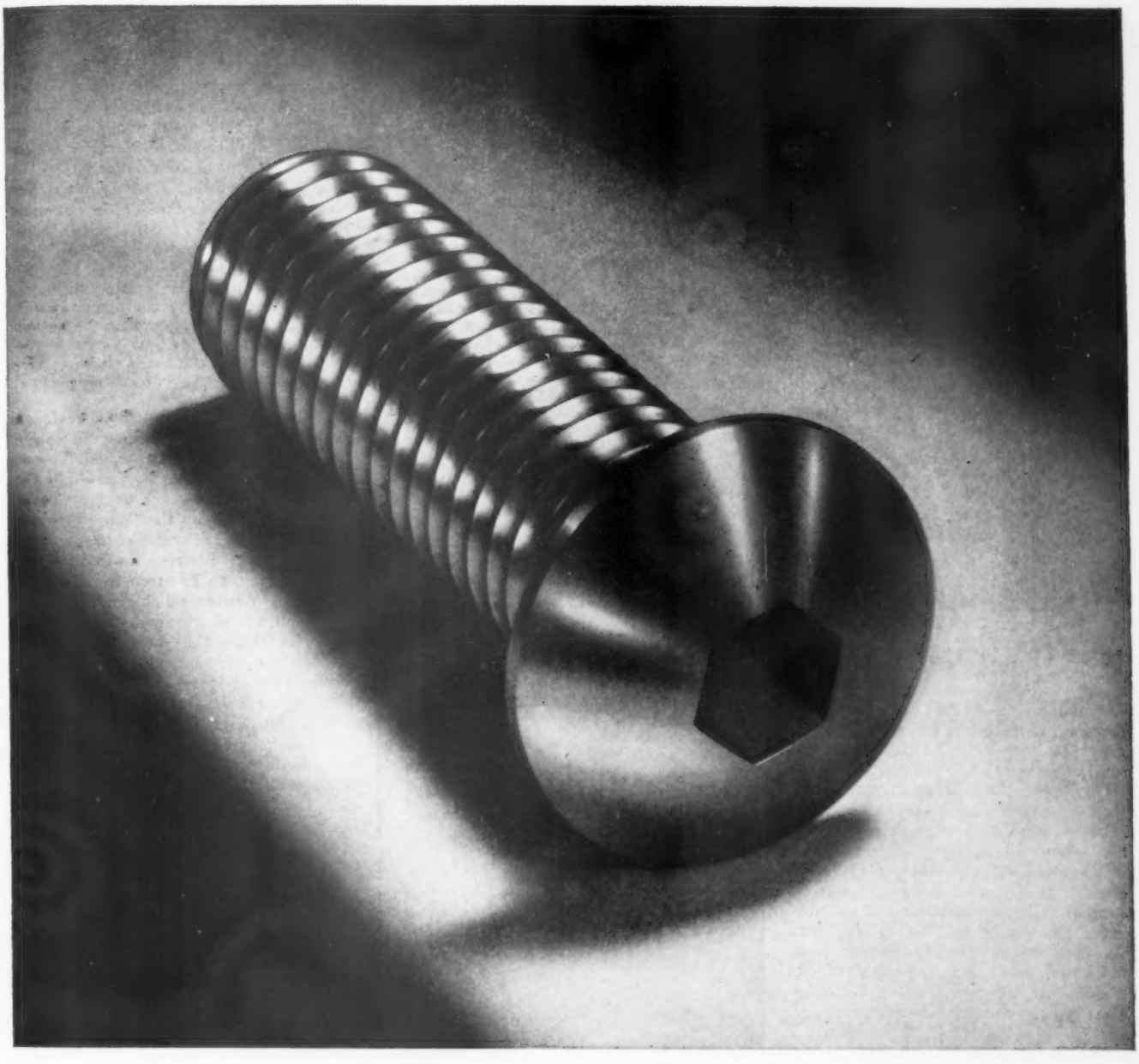
"Producing for the Navy" is the title of a pamphlet prepared by the Office of Naval Material for use by businessmen who hold Navy contracts. The pamphlet does not contain all the answers but it explains in simple language where to go or whom to see to get them. Sample subject titles: Contracts and Letters of Intent, Machine Tool Problems, Controlled Materials, Packaging and Shipping. Copies are available from Navy Technical News, Office of Information, Navy Dept., Washington 25, D. C.

MOTION PICTURE SHOWS HOW REFRACTORIES ARE MADE

A 30-minute, 16 mm. sound film, entitled "Bricks from the Sea", showing the manufacture of basic refractories, is announced by the Chemical Division of Kaiser Aluminum & Chemical Sales, Inc., Oakland 12, Calif. It is in color and pictures refractory brick and ramming mix production from the extraction of magnesia from the Pacific Ocean by processing 13,000,000 gallons of seawater daily, to the use of refractories in the production of steel, cement, copper and basic products.

NEW FAST MINING MACHINE

A mining machine that bores 700 feet horizontally into the side of a hill, taking out a steady stream of coal by a series of traveling conveyors, was recently announced by Carbide & Carbon Chemicals Company, a division of the Union Carbide & Carbon Corp., New York. Powered by electricity, the machine which has four intermeshing, rotary cutting heads in front, moves on tractor treads, carving a hole 3'x10' in the coal seam and forcing the mined coal onto the traveling conveyor system. It is stated up to 1-2/3rds tons of coal can be mined per minute by the machine, and that in practice it has poured out 576 tons in eight hours.



...and now UNBRAKO BUTTON HEAD SOCKET CAP SCREWS

These UNBRAKO screws are strong, accurate and uniform. They are designed for applications where countersinking is not practicable. They feature:

- **Head and threads concentric with the body**
- **Threads to head**
- **Low head height that streamlines design**
- **Nonslip drive that speeds assembly**
- **Nonburr socket that eliminates injuries from sharp splinters**
- **Class 3 fit—an UNBRAKO standard**
- **Stocks at your UNBRAKO industrial distributor**
- **Standard sizes—# 8 through ⅝" diameter**

Write for literature. STANDARD PRESSED STEEL CO., Jenkintown 31, Pennsylvania.

UNBRAKO® SOCKET SCREW DIVISION

SPS

JENKINTOWN PENNSYLVANIA

Backstand Belts Triple Production!

Three times as many steel guides sanded per hour using ARMOUR Backstand Belts!

In sanding beveled edges of a steel guide for vending machines, a prominent company* decided to use backstand belts instead of set-up wheels. The switch *increased production from ten to thirty guides per hour!* Here is more proof that Armour backstand belts are more efficient, more economical than set-up wheels.

Belts are only one of the many forms of coated abrasives available to you from Armour. There are more than 30,000 different varieties in grit size, backing, etc. We have sheets, discs, rolls, tubes—and specialty sizes to meet your specifications. Your industrial supply distributor will be glad to tell you about this complete Armour line. Call him today!

Mail the coupon below for your free copy of our useful booklet, "Backstand-Belt Polishing."



*Name of company available on request

We recommend buying through your industrial distributor.



ARMOUR
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MAIL THIS COUPON TODAY!

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Please send me the free booklet, "Backstand-Belt Polishing."

*Name*_____ *Title*_____

*Firm*_____

*Address*_____

*City*_____ *Zone*____ *State*_____

GOVERNMENT RESEARCH REPORT ON FABRICS FOR SEWED GARMENTS

How to determine which fabrics will make sewed garments that are strong at the seams is described in a Government research report now available from the Office of Technical Services of the U. S. Department of Commerce.

When a garment is sewn by machine some of the fabric threads do not move aside as the needle penetrates the fabric structure, hence are severed (broken). The percentage of broken threads becomes excessively high, and the cloth is badly weakened at the seam, in fabrics that have been put through certain finishing treatments. This weakening of such fabrics at the seam is especially severe when the garment is sewn on high speed sewing machines.

The conventional method of testing a cloth for its ability to withstand sewing damage (sewability) is to count the percentage of threads thus broken off by the sewing action. However, tests and procedure developed by the Army Quartermaster Corps Laboratories prove that the ratio of the strength of the cloth before sewing, to its strength after sewing, gives a more reliable indication of how well the fabric withstands sewing damage. With this new test, fabrics that will not stand up at the seams can be effectively eliminated.

The Quartermaster Corps research report which describes the development of this test points out that it is more sensitive and more reproducible than the conventional severance test. A Government specification of cloth sewability, based on this test, is included in an appendix.

PB 111023, *Development Of A Sewability Test For Cotton Fabrics,* 19 pages, Mimeo $.50. Orders should be addressed to the Office of Technical Services, U. S. Department of Commerce, Washington 25, D. C., accompanied by check or money order payable to the Treasurer of the United States.

NEW PRODUCTION POOL ANNOUNCED BY SDPA

Formation of a new production pool, the 18th to be formed under the current mobilization program, was announced by Small Defense Plants Administrator, John E. Horne.

The pool, known as Tri-State Defense Industries, Inc., 171 Madison Avenue, New York City, is composed of eight small firms in the New York City area who have banded together for their mutual assistance in obtaining defense contracts.

Members of the new pool are Ace Utilities, Inc., 925 Bergen Street, Brooklyn; Arrow Conduit and Fittings Corp., 129 30th Street, Brooklyn; Eugene J. Brandt and Company, Inc., 847 11th Avenue, New York; Ducate Brothers, Park Avenue, Lincoln Park, New Jersey; Fluorescent Wiring Devices, 30 Tiffany Place, Brooklyn; Gilton Manufacturing Corpo-

(*Please turn to page* 302)



HOW INDUSTRY SLASHES HANDLING COSTS

Savings in materials handling, with electric trucks, are truly amazing. Money savings in excess of 50% are frequently reported. More tonnage is being handled per hour, and with greater safety. Through higher tiering, warehouse capacity is increased. Valuable manpower is made available for other jobs. Many of these trucks are powered by Exide batteries.

There are dependable Exide batteries for every storage battery need. They are used not only to power battery-electric trucks, but also mine locomotives, trammers and shuttle cars. Railroads use them for diesel locomotive starting, car lighting, air-conditioning, signal and communication systems.

Exide batteries are used by telephone, telegraph and cable companies . . . electric light and power utilities . . . radio and television stations . . . ocean, river and harbor vessels . . . municipal fire alarm and police telegraph systems . . . more than 250 different applications in all. And on millions of cars, trucks, tractors and buses, they daily prove that "When it's an Exide . . . you start."

Exide
BATTERIES

"Exide" *Reg. Trade-mark U.S. Pat. Off.*

1888 . . . DEPENDABLE BATTERIES FOR 64 YEARS . . . 1952

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 2 • *Exide Batteries of Canada, Limited, Toronto*



4-ton loads of 4-ft. x 12-ft. wallboard stored ceiling-high at Newark Plaster Co., So. Kearny, N. J.

high, wide and then some-

Long loads, loose loads, whoppers, or what have you . . . Towmotor makes short shift of putting *any* capacity-cargo anywhere you want it, right up to the rafters. Write for your copy of "Man-Hour Thieves," Towmotor's new guide to successful cost cutting procedures, and name of your nearest Towmotor Representative. Towmotor Corporation, Div. 11, 1226 E. 152nd St., Cleveland 10, Ohio.

TOWMOTOR
THE ONE-MAN-GANG®

FORK LIFT TRUCKS and TRACTORS
SINCE 1919
RECEIVING • PROCESSING • STORAGE • DISTRIBUTION

(*Continued from page* 300)

ration, 141 18th Street, Brooklyn; Paramount Metal Spinning and Stamping Company, Inc., 174 Lafayette Street, New York; Pitz Foundry Inc., 288 Scholes Street, Brooklyn, N. Y.

The pool is incorporated under the laws of Delaware, Mr. Horne said. The eight member companies have nearly 550 employees, total sales of all of the companies in 1951 were nearly $5,200,000 and the group has a net worth of about $1,400,000.

The member firms are engaged in the manufacture of metal products and electrical devices. They propose to seek defense contracts for the production of such items as aluminum and steel lockers, cabinets and castings, vacuum and condensation pumps, steel and tubular furniture, electrical wiring devices including fluorescent sockets and canopy switches, dry cell battery cases, waterproof boxes, propellors for ships, and many types of sheet metal products.

Under the pool agreement the pool will register itself with all prospective interested agencies of the Government, will file with them the pool's productive facilities and such other pertinent data as may be required, solicit work for the pool and its members, and acquire and disseminate information of interest to the members.

The formation of production pools is one means of assisting small firms to obtain defense contracts, SDPA said. It often happens that a group of small firms banded together are equipped to handle a prime defense contract that none of them individually would be in a position to accept.

More than 400 individual small firms, with a total employment of more than 20,000 have been banded together in the 18 production pools so far organized in eight states.

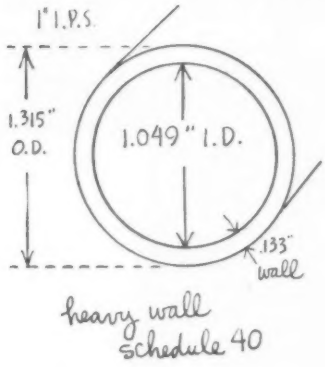
BEGIN PRODUCTION OF SUPERFINE FIBER GLASS

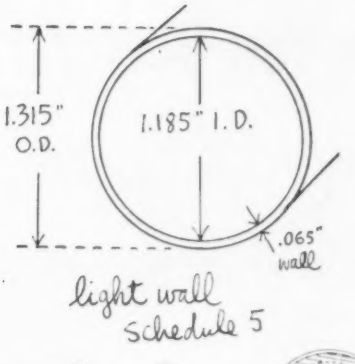
Production of superfine fiber glass was recently begun by the Fiber Glass Division of the Pittsburgh Plate Glass Company, at Shelbyville, Indiana. Production will be expanded at the plant now in operation to bring in a furnace a month until four tanks are in operation for producing superfine fiber and 50 bushings are operating for production of continuous or stand fiber.

Superfine fiber glass is being used for insulating, sound absorption and flotation purposes in numerous defense program requirements. As a short fiber in mat form, superfine serves the dual purpose of thermal and acoustical insulation in automobiles, aircraft, military armored vehicles and naval craft. It is also used as flotation gear by the Navy and Air Force.

Continuous or strand fiber glass is used in yarn form as electrical insulation and in the textile field for the manufacture of noncombustible fabrics. Chopped strands are used as a reinforcing agent for plastics.

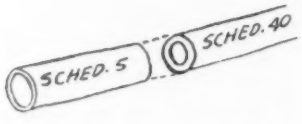
here's what you gain with stainless schedule 5 pipe



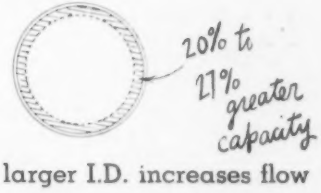




You save money. Schedule 5 pipe costs about half as much per foot as Schedule 40.



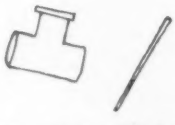
Schedule 5 has the same O.D. as Schedules 10, 40 and 80 —for hook-up with existing lines as well as for new installations.



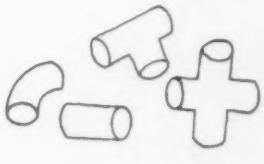
Its larger I.D. increases flow and capacity in pipelines, exchangers and other equipment.



It's lighter. This means quicker and easier installation.



You can save substantially on valves, fittings, weld rods, etc., because smaller O.D. material can frequently be used. Tubing sizes can now be replaced with light wall pipe . . . for ready hook-up with standard valves, pumps, and other equipment normally manufactured in pipe sizes.

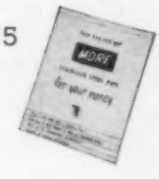


Fittings as well as stocks of Schedule 5 pipe are carried by conveniently located Carpenter distributors.

Specify Schedule 5 pipe . . . it saves dollars . . . and makes a lot of sense!

THE CARPENTER STEEL COMPANY
Alloy Tube Division, Union, N. J.
Export Dept : The Carpenter Steel Co., Port Washington, N.Y. "CARSTEELCO"

Data Sheets give you complete information about Carpenter Schedule 5 Stainless Pipe. Write for your personal copy.



THE U.S. NEEDS YOUR STEEL SCRAP NOW

more than corrosion resistance

Carpenter

STAINLESS TUBING & PIPE

Analysis → Tolerance → Finish →

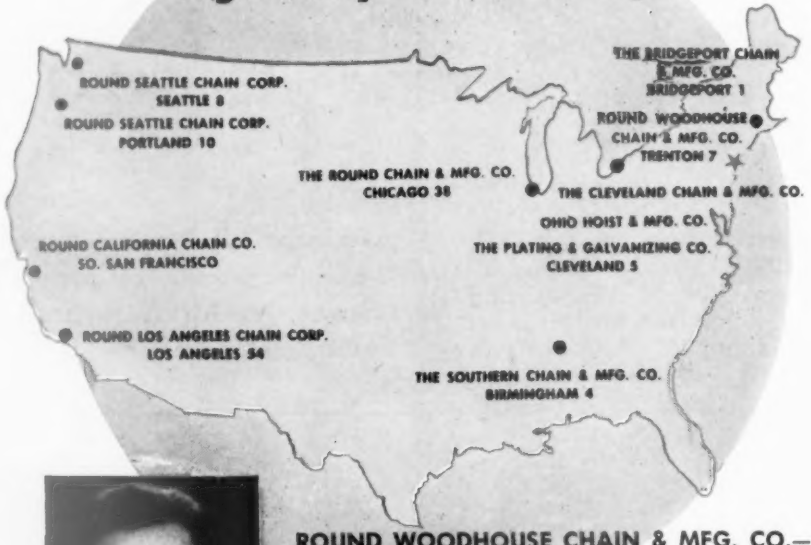
- guaranteed on every shipment



To Serve You Better...There's a

Round CHAIN COMPANY

right in your territory!





W. J. KEENAN

ROUND WOODHOUSE CHAIN & MFG. CO.— established in 1884 — joined the nationwide Round organization in 1936. Under the management of Willis J. Keenan, who has been a Round Chain man for 15 years, Woodhouse now offers *a complete line* of welded and weldless chain, slings, chain hoists, electric hoists and trolleys to the important Middle Atlantic market. *Sold exclusively through distributors and wholesalers.*

Chain for Every Need! Security in Every Link!

A COMPLETE LINE OF WELDED AND WELDLESS CHAIN

SLING CHAINS • LOG CHAINS • HOIST CHAINS

HOISTS • HOOKS • FITTINGS AND ATTACHMENTS

Round CHAIN COMPANIES

THE OLDEST NAME IN ROUND CHAIN

How to Handle Renegotiation

For the thousands of concerns actively engaged on defense contract work, the subject of renegotiation is of prime importance, in its impact on company profits. The basic principles and procedures of renegotiation are well known, and it is a tribute to the reasonableness of American industry generally that the vast majority of cases coming under review have been settled amicably across the conference table, with results acceptable to all concerned. The prerequisites to such satisfactory settlement are (1) complete and accurate cost records, and (2) an acceptable measure of profits, which must be reasonable in the light of all factors involved—the historical record of earnings in the industry, special risks assumed and capital employed on the contract, efficiency of the operation, particular conditions such as working on new materials or committing to meet close tolerances or difficult specifications, and the effect on the balance of a company's business when it concentrates on defense work, converts to special equipment, and gears up to expand production for the defense work alone. Needless to say, all of these arguments must be well supported in order to justify the company's claim.

In preparing a case for renegotiation, particularly on the controversial point of what constitutes a reasonable profit, the experience of other companies in similar cases would be extremely valuable. To gain access to such information, however, is easier said than done. Renegotiation results are kept confidential by the Renegotiation Board. But companies must make their figures public if they are not satisfied with the government renegotiators' idea of a reasonable profit and carry their case to the Tax Court. From these sources, some very pertinent, concrete, and helpful data can be compiled.

Under the auspices of Business Reports, Inc., research organization in New York City, such a compilation has been made. William J. Casey, a member of the New York Bar, and C. Richard Gunzer, CPA, have analyzed the renegotiation arguments and results in more than 200 cases which government contractors have filed in the Tax Court. They have made a breakdown of profit ratios to sales and net worth in 112 separate industries, year by year, from 1944 through 1950. They have tabulated profit and efficiency comparisons—percentage of profit to sales and to net worth, price-earnings ratio, and turnover of fixed assets and of inventory—for 188 representative individual companies in 23 industrial classifications, year by year, from 1946 through 1951.

On the basis of these basic facts, Messrs. Casey and Gunzer present their analysis of renegotiation results, industry profits, and company profits, to en-

(*Please turn to page* 306)



Whether you're color minded or cost conscious a Barreled Sunlight Paint Job is Engineered exactly to your needs

Color-minded executives prefer Barreled Sunlight "Engineered Color" because it provides a *practical*, down-to-earth color plan that improves lighting and seeing conditions and is *custom tailored* to the special needs and conditions of each individual plant or building.

Cost-conscious executives know from experience that Barreled Sunlight Maintenance Paints are *specialized* finishes, especially built for rugged, heavy duty service. They know they go further, hide better and are easier to apply — which means not only worthwhile savings in material, but also important savings in labor, which today accounts for at least 80% of total painting costs.

Yes, whether you're color minded or cost conscious you can do the job better and at lower cost with famous Barreled Sunlight. The next time you paint call in your Barreled Sunlight representative. Let him recommend the colors and finishes which will give you a better looking, longer lasting paint job at lower cost for both material *and labor*.

Write for this Helpful Booklet

For full information on Barreled Sunlight Maintenance Finishes and Barreled Sunlight Engineered Color send today on your company letterhead for this fact-filled Barreled Sunlight Catalog. There's no charge—and no obligation.



BARRELED SUNLIGHT PAINT COMPANY
18-L Dudley St., Providence, R. I.

Barreled Sunlight Paints®

In whitest white or clean, clear, wanted colors, there's a Barreled Sunlight Paint for every job

For over half a century those who know the best in paints . . . for all types of buildings . . . have strongly insisted on famous Barreled Sunlight

U. S. TOBACCO COMPANY INSTALLS RANDOLPH AUTOMATIC FIRE SYSTEM

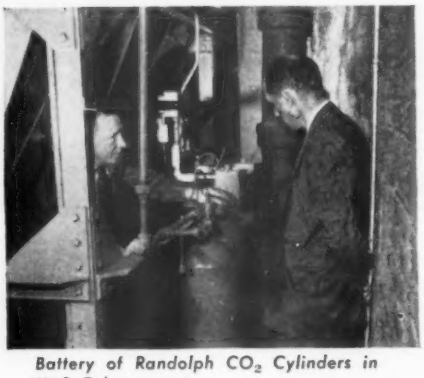
The U. S. Tobacco Company's large multiple unit dust collector presented an unusual and worrisome fire hazard, but this 150 pound Randolph Automatic System not only automatically detects and extinguishes any fire that might occur in the unit, but also shuts down the dust collector blower, and rings an alarm located on one of the lower floors of the building.



Officials of the U. S. Tobacco Co., and the Nashville Fire Department inspect the Randolph Automatic System installed on giant dust collector.

Kills Fire, Sounds Alarm and Shuts Down Machinery

As in the U. S. Tobacco installation, Randolph Systems, in addition to automatically killing the toughest fires in split seconds, can also be equipped with duct and door closers, motor, fan and machinery shut-offs, warning alarms and other auxiliary safety devices. Systems are designed for both local application or total room flooding and are ideal for dip tanks, baking ovens, spray booths and hundreds of other applications.



Battery of Randolph CO_2 Cylinders in U. S. Tobacco system.

Free Catalog and Engineering Service Available Without Cost

Randolph's FIRE HAZARD INDEX gives correct equipment and methods for protection against 590 typical fire hazards. Write for your free copy today. Address: Randolph Laboratories, Inc., 1 E. Kinzie St., Chicago 11, Ill.



(*Continued from page* 304)

able companies to make comparisons and correlations justifying their pre-tax profits in renegotiation. In some industries, if a company can show a higher than normal rate of turnover, it should be able to justify a higher rate of profit. The study shows how a company can develop a case to justify a higher than normal rate of profit by showing how it qualifies on statutory factors spelled out in the renegotiation law. Thus, if a company can show that it assumed extra risks, that its costs were reasonable, that its operations were efficient, that it made special contribution to the defense effort, and that its business operation differed in character from that prevailing normally in its industry, it may be able to justify a case for a higher than normal margin of profit.

For example, a higher profit will be allowed a company which can show that, as a result of taking on defense work, it risks the loss of its regular customers or the saturation of its post-defense markets. The arguments falling under these headings are summarized in a check list of the 46 factors which can justify a high rate of return on sales and on capital, and in a check list showing how these arguments were developed in renegotiation cases appealed to the Tax Court.

The complete report is a document of 204 pages, entitled "How to Handle Renegotiation." It is available from Business Reports, Inc., 225 W. 34th St. New York, N. Y., at $24.00 per copy.

The opening section tells how renegotiation works, telling what business is subject to renegotiation, listing allowable costs, the criteria of reasonable profit, and the forms and procedures that are involved in a renegotiation.

The second section tells how to prepare for renegotiation, including some advice on original pricing, the liability inherent in financial statements, gathering evidence, how the government checks performance, specimen letters and record forms, standard work sheets and reports, and organizing for the renegotiation conference.

The third section presents aids in developing your argument, with a check list of the arguments in Tax Court files, analysis of results in these cases, specimens, of both the company and the renegotiator's brief and the reasons for the final determination.

The tables of profit and expense ratios and turnover figures occupy the last 50 pages of the report.

* * *

FULL-COLOR, NARRATED MOTION PICTURE ABOUT DIATOMITE

Johns-Manville recently completed a 16 mm, 36 minute, sound film in full color covering its diatomaceous silica products called Celite. The title of this motion picture is "Celite, The Story of How Johns-Manville Puts Diatem to Work" It explains how the Celite diatomite deposit was created over five million years ago . . . how Johns-Manville mines

(*Please turn to page* 308)



It "Takes the Pick" of Your Clothes

Added Evidence that

Everyone Can Count on VEEDER-ROOT

Weavers know this as a Pick Counter, because it counts the picks, or trips of the shuttle across the loom as cloth is woven. And this is the newly modernized model of the original V-R 2-3 Convertible Counter. 4th counting unit is also available.

This is another V-R "first" in advancement of counter design for every field of industry. And it's more than likely that V-R can supply or design a counter that will count to *your* advantage. Find out. Write:

VEEDER-ROOT INCORPORATED
"The Name That Counts"
HARTFORD 2, CONNECTICUT
Chicago 6, Ill. • New York 19, N. Y. • Greenville, S. C.
Montreal 2, Canada • Dundee, Scotland
Offices and Agents in Principal Cities



When you have a taping problem

—ask your Orange Core dealer





Your Orange Core Gummed Tape dealer is an expert on the sealing of cartons and parcels; his help to you is free.

"**Service**" is the first name of your Orange Core Gummed Tape dealer. He can give you the counsel you need—not only on the sealing of cartons and parcels—but on many paper problems in general. If he doesn't have the facts you want, he'll get them for you. Good will is the foundation of his business success.

Service is his yardstick for the paper lines he sells, too—lines that give you *more service* for the money. Typical is Orange Core gummed sealing tape. This brand is unexcelled by any other standard tape for uniformity and dependability—because it is made from tree to finished product under *one* roof. As a bonus it offers you the exclusive Hudson feature—*Supple-izing**—preventing tendency to stiffness and curl.

Service is prompt with your Orange Core dealer. Patronize him for *all* your paper needs.

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"The world's largest selling gummed tape"

ORANGE CORE

Copyr. H. P. & P. Corp.

GUMMED SEALING TAPE

Available plain or printed, in choice of widths, weights, lengths, and colors

HUDSON PULP & PAPER CORP., Dept. 24, 505 Park Ave., New York 22

(*Continued from page* 306)

this unusual material and converts it into usable forms . . . and how the unique properties of Celite are put to work. The camera takes you into various industrial plants where Celite is used as a filter aid . . . shows some of the ways in which Celite mineral fillers improve products and processes . . . and points out other interesting Celite applications. This film may be borrowed without charge from any of the 17 Johns-Manville sales offices located throughout the United States and Canada.

GANTRY CRANE HAS ITS OWN POWER SOURCE



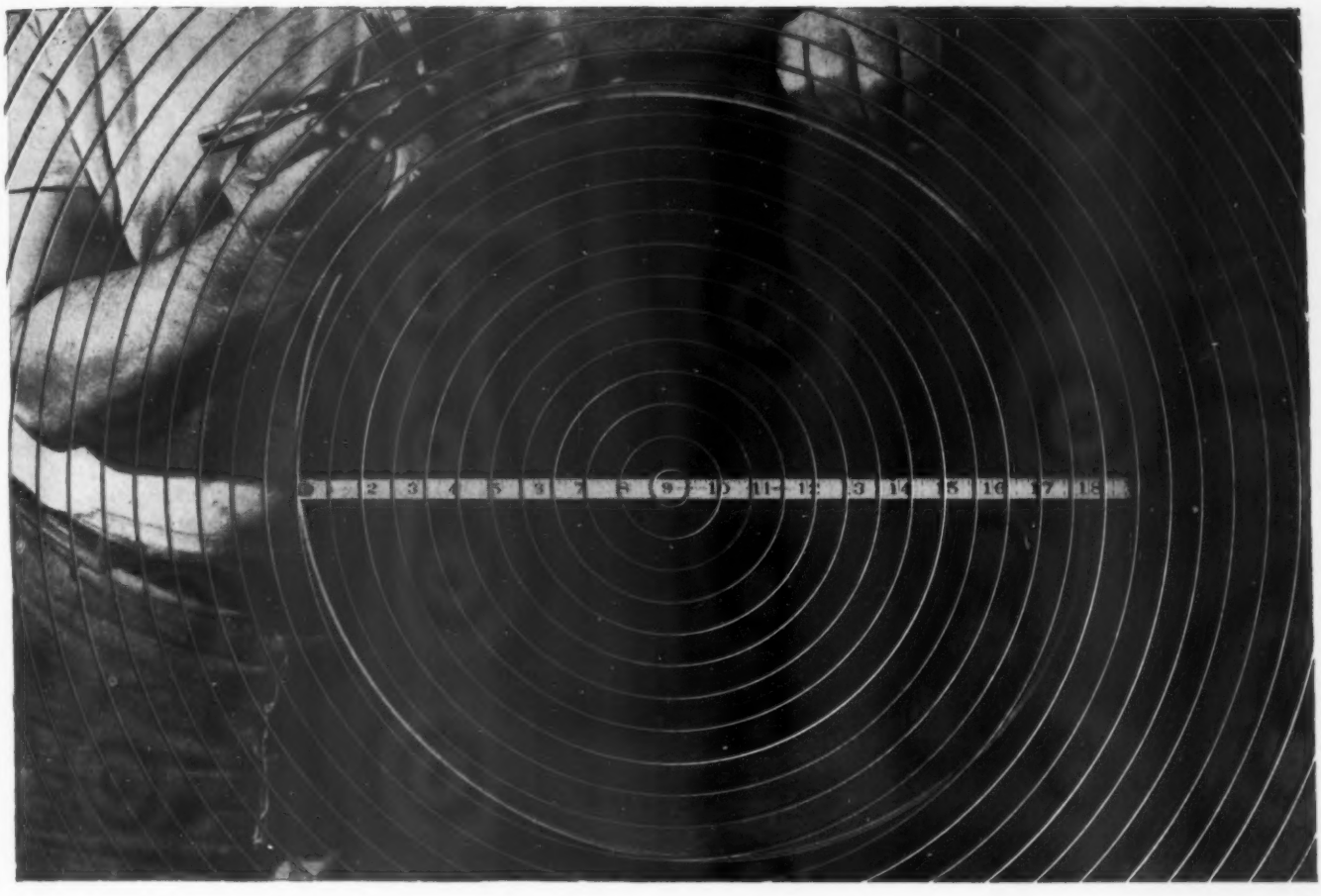
The gantry crane shown in the illustration features a 60 foot span with a 15 ton capacity and 3 ton auxiliary, and its own power source, the latter being a built-in diesel engine-powered generator, which is mounted on the crane sill and fully enclosed. The crane was designed for a Northern Michigan plant by the Harnischfeger Corporation and built in its Milwaukee plant. The 80 horsepower diesel engine drives a 50 KW direct current generator for all crane operation. All controls are in the enclosed heated cab. For positive uniformity of operation, the crane has individual electric motors on each sill. These are electrically interlocked to prevent one shear leg from getting ahead of the other.

NPA LIFTS RESTRICTIONS ON MENDERS

Lifting of restrictions on the use of "menders" in the manufacture of packaging closures was announced recently by John C. Clay, Director of the Containers and Packaging Division of the National Production Authority, Department of Commerce.

The change, made through amendment of NPA's Order M-26, Packaging Closures, brings the particular section of the order amended in line with similar relief granted in recent amendments to Order M-25, Cans, and Order M-24, Tin Plate and Terne Plate.

"Menders" means tin coated steel sheets arising in the production of electrolytic tin plate which have been set aside by the producer by reason of surface appearance which disqualifies such sheets from sale as primes, seconds or unassorted, and mended into either coke tin plate primes, seconds or unassorted by hot-dipping in tin, or into unassorted terne plate by hot-dipping in terne metal.



from 1/8" *to* 40" **OD**

WHEN YOU NEED STAINLESS STEEL TUBING

TRENTWELD *will meet your needs best*







Name an industrial application that calls for stainless steel tubing — and the tubing to name is TRENTWELD. Available in diameters from 1/8" to 40" OD TRENTWELD presents a broad range of grades, gauges and finishes.

Study the product and the plant where it is produced and you find the reason for the steady increase in TRENTWELD usage. For TRENTWELD is made in a *tube* mill by *tube* experts who roll and weld stainless and high alloy tubing without added rod metal. This Trent method results in metallurgically correct tubing with a uniform section and uniform corrosion resistance.

No matter how specialized your tubing needs may be, you will find there's a TRENTWELD tubing to meet your most exacting requirements. To call in Trent is to put our experience at your disposal. Write us full details of your most pressing problem involving stainless or high alloy tubing.

TRENTWELD

STAINLESS STEEL TUBING

TRENT TUBE COMPANY, GENERAL SALES OFFICES, EAST TROY, WISCONSIN (Subsidiary of CRUCIBLE STEEL COMPANY OF AMERICA)



INCREASE OF LEAD TIME FOR CLAD STEEL PRODUCTS

An increase in the lead time of clad, or coated steel products, principally sheet, strip and plate, by an additional 45 days, is provided in amendment 2 to NPA Order M-1 issued today by the National Production Authority, Department of Commerce.

This additional 45 days brings the total lead time for such products to 120 days, or 135 days, depending on whether the plate or sheet has a 75 or 90-day lead time.

"Producers of clad steels are required to place orders with a 75 or 90-day lead time for plate or sheet," George C. Lovell, Chief of the Coordination and Regulation Section, Iron and Steel Division, explained. "On the other hand, orders placed on them for the clad steels have the identical lead time which means that no time-provisions are made for processing of the clad steels. Heretofore, the cladders were able to adjust their schedules despite the time lag. However, with the advent of the military 'set asides' of M-1 such adjustment became impossible."

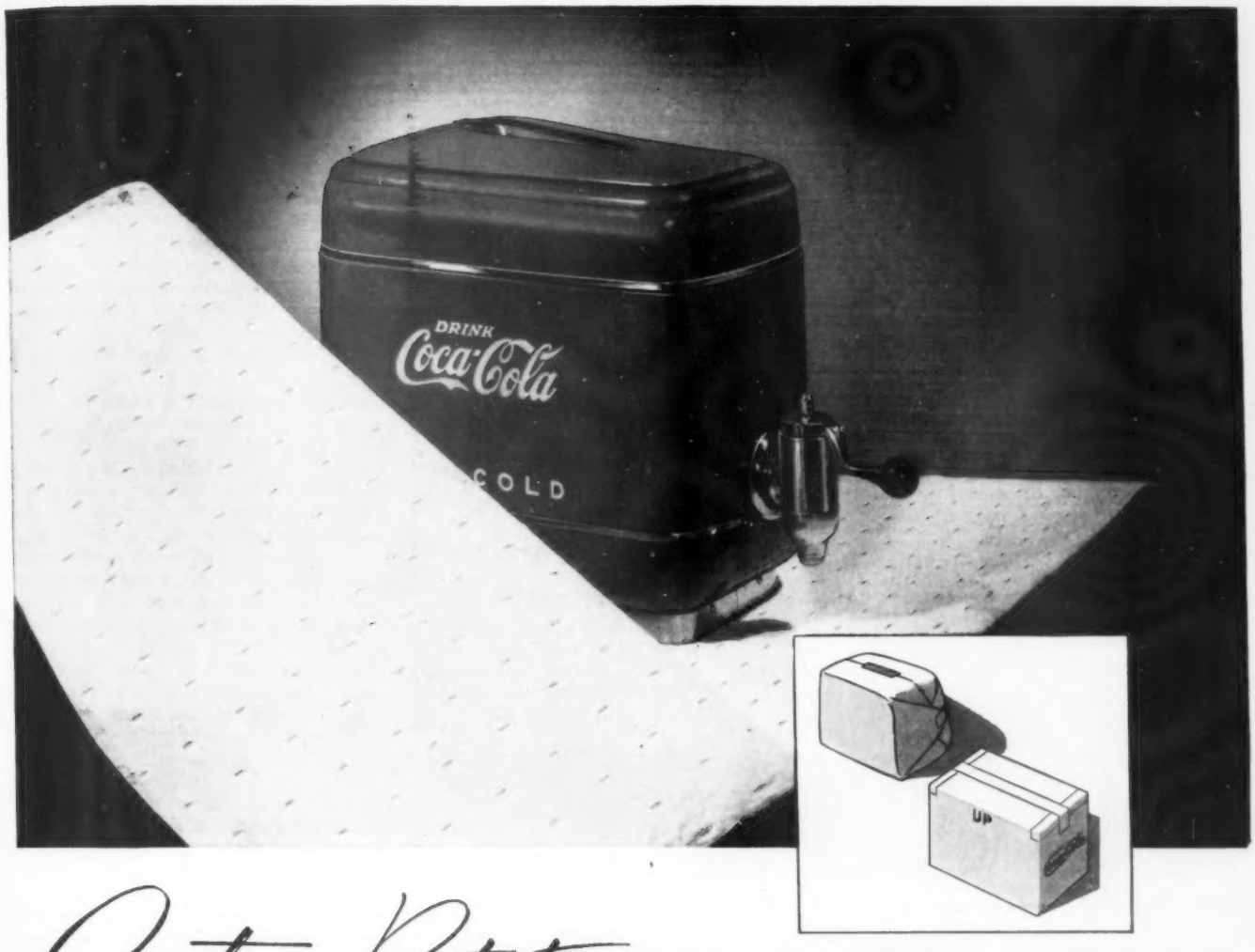
The "set asides" require a definite percentage reservation of steel for military rated orders for each specific month.

ALL-ALUMINUM MATERIALS HANDLING BOX CARRIES 5000 LB. LOAD



A new all-aluminum materials handling box designed by the Aluminum Company of America, measuring 60″ x 42″ x 36″, weighs 245 pounds, and will carry a 5,000-pound load. A comparable steel box weighs 620 pounds. The box is of welded construction, using 61S alloy sheet and extrusions, the welds being made either by inert gas shielded arc welding or the sigma process.

Five hundred of the boxes are in use at the company's Cleveland plants. There they serve a dual purpose, handling finished products or as a scrap box. Mounted on low runners they may be lifted by fork trucks and carried, stacked or turned over and the contents dumped. The runner is formed like an I-beam for added strength. Tiering lugs make stacking an easy matter.



Custom Protection –prevents shipping damage as no other packaging method known!

How frequently carefully manufactured products are destroyed or damaged on their way to market, due to inadequate packaging protection! Yet there's no excuse for costly shipping damage, as Kimberly-Clark Interior Packaging—KIMPAK* has proved time and again. This modern packaging material of unlimited versatility provides *custom protection* for every type of product.

KIMPAK is soft, non-abrasive, easy to apply and pleasant to handle. It protects against damage to fine finishes due to rough handling, shock and vibration in transit. KIMPAK is light in weight, yet gives more protection than most materials of far greater weight and density—an important factor in reducing the size and weight of packages to offset recent postal rate increases.

Regardless of the product you manufacture, you'll discover, like the Multiplex Faucet Company, that KIMPAK gives maximum protection at lowest true cost. Today, investigate *custom protection*—the safe, smart way to prevent shipping damage. For complete information, write to Dept. D-12, Kimberly-Clark Corporation, Neenah, Wisconsin.



*T. M. REG. U. S. & FOREIGN COUNTRIES

A Product of Kimberly-Clark



Speed Production...

With The Terrific Rotary Impact of this Husky Mall TORK-HAMMER



Model 2EW

Put more power into manpower with this speedy portable impact tool that handles any tightening or removing operation. Runs nuts and bolts up to ½-inch in size. Quickly converts for drilling, reaming, tapping, extracting broken capscrews or studs. Drives wood augers, wire brushes, sanders, etc. Ideal for close quarter work. Send for Descriptive Bulletin No. 2422.



Portable Electric Screwdriver

Slashes assembly costs — speeds shop operations. Weighs only 3½ lbs. Equipped with 2 finder-type bits and Allen hex wrench. Model 143S.

Mall TOOL COMPANY

7791 S. Chicago Avenue
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MARKING DEVICES

& RUBBER STAMPS

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Rubber, Brass and Steel Stamps • Corporate and Notary Seals Steel Dies • Marking Machines • Trade Name Plates • Gold Stamping Dies • Shipping Room Supplies • Engraved Signs and Plates.

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SAME DAY SERVICE

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WRITE FOR FREE CATALOG

OFF YEAR FOR LEGISLATURES BRINGS 175 NEW TAX MEASURES

Nearly 175 measures imposing new levies or changing existing taxes were enacted by 17 states and the District of Columbia during 1952, the off-year for legislative sessions, according to the STATE TAX REVIEW, published by Commerce Clearing House, national law reporting organization.

Gasoline taxes continued their upward climb in three jurisdictions: District of Columbia, Massachusetts and Missouri. Louisiana lowered its 9 cents a gallon rate, the highest in the nation, to 7 cents.

Income taxes were reduced, in effect, in six states: Colorado, Georgia, Louisiana, Maryland, Mississippi and New York. Nebraska refunded a property tax declared illegal by the courts.

Michigan raised its franchise and intangibles tax rates and imposed new levies on banks and insurers. Pennsylvania extended its emergency corporate income tax rate and postponed a financial crisis by providing for collection of part of the revenue ahead of time.

Sales, cigarette and liquor taxes attracted less attention during the 1952 legislative sessions, but many measures were enacted governing methods and dates of their collection.

"Cities have not improved their financial positions as much as have the states," says CCH in the review. "Six states granted new taxing powers to political subdivisions to help keep them afloat. Extension of emergency rates and imposition of new taxes in New York City point out dramatically what has been going on across the nation."

TECHNICAL AID LEAFLETS ISSUED BY SDPA

Issuance of a new leaflet "Cutting Oils and Coolants," designed to give technical assistance to the small machine shop, has been announced by the Small Defense Plants Administration.

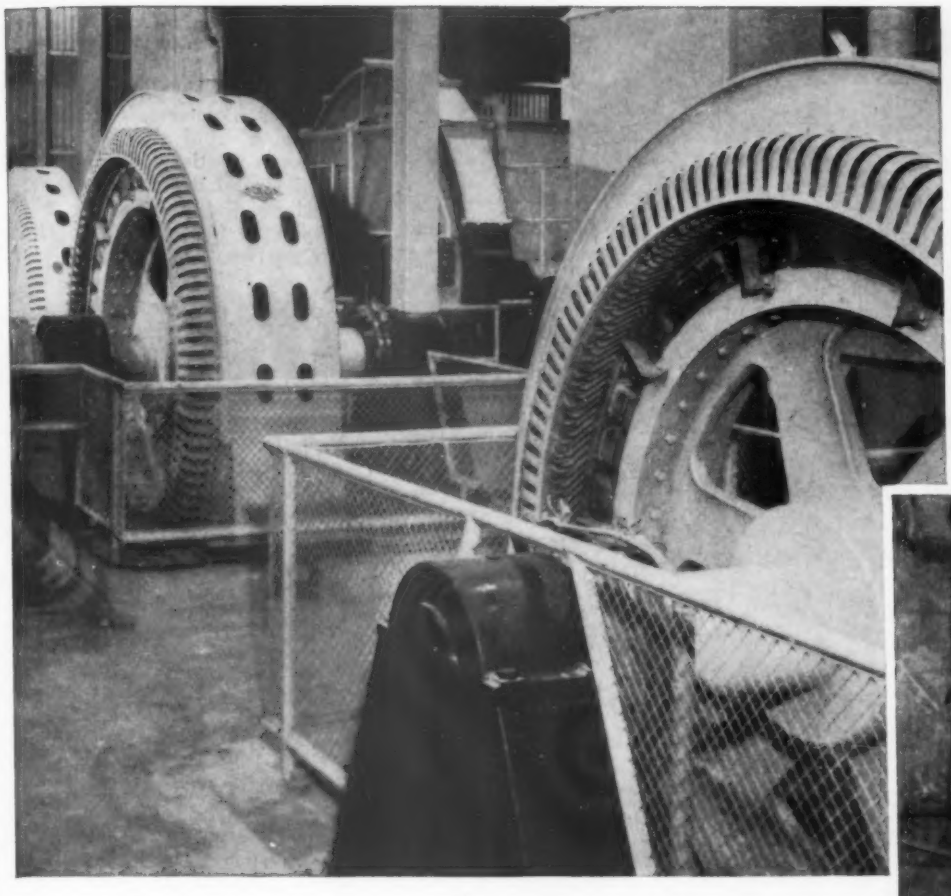
The leaflet is Number 13 in the series of Technical Aids issued by the SDPA's Management Service Division and is available free on request at SDPA field offices.

A section of the leaflet is devoted to a general discussion of the selection of proper cutting oils and coolants in various machine operations. Other sections give more detailed information about the use of cutting oils and coolants in machining copper and copper alloys, stainless steel, steel workpieces and special-treatment steels.

Following is a list of other Technical Aid leaflets issued by SDPA which are also available free on request at SDPA field offices:

1. Proper Alignment of Machine Tools
2. Sharpening of Drills, Lathe Tools and Milling Cutters
3 Care of Belt, Chain and Gear Drives
4. Sharpening Certain Metal Cutting Tools Used in Machine Shops

(*Please turn to page* 314)



12,000 barrels of cement are produced each day at the Prospect Hill plant, Missouri Portland Cement Company, St. Louis, Mo. Okonite Cables supply power for these large, low speed synchronous motors used in the raw and finish mills.



WANTED: 24-hour, 7-day week production

SELECTED for key circuits: OKOLITE-OKOPRENE CABLES

In designing an electrical system for the Prospect Hill plant of the Missouri Portland Cement Company in St. Louis, one of the prime requirements was that it must meet the demands of continuous 24-hour, 7-day a week operation.

Discussing the need for good engineering and design, Mr. A. A. Kaspar, Chief Electrical Engineer of the Guarantee Electrical Company, the contracting engineers, says:



A. A. Kaspar

"Cost of good design is initially higher, but the difference may be offset many times over by lower maintenance cost and fewer service interruptions. Since the plant discussed here requires a 24-hour, 7-day week operation, need of good design is apparent."

Today's high costs of installation, maintenance and man-hours lost from production outages emphasize more than ever the actual savings that result from good design in your electrical system. And since good cable design is essential to reliable power distribution, Okolite-Okoprene cables are being increasingly specified.

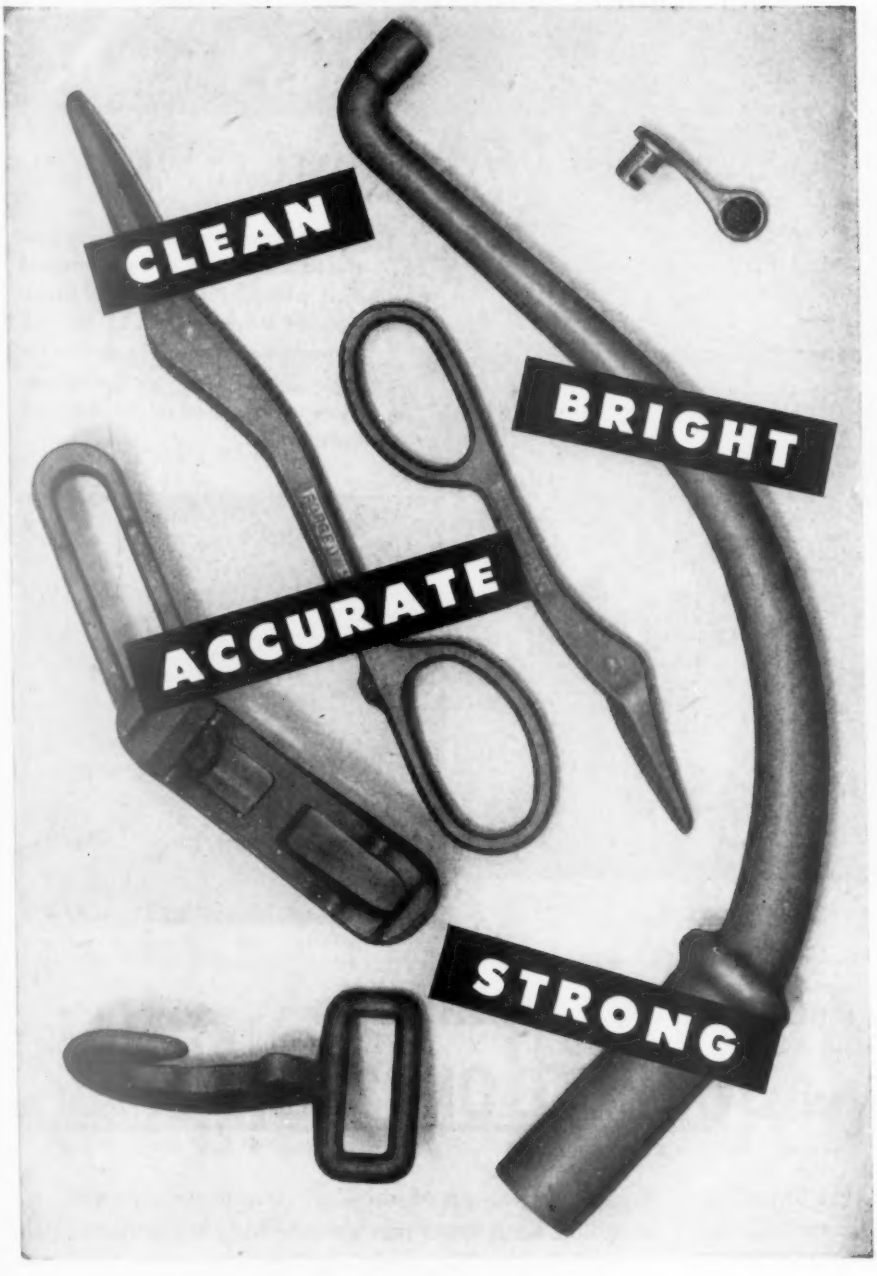
The story of Okolite-Okoprene quality—the high voltage Okolite insulation, the tough Okoprene sheath, the exclusive strip process, the supervoltage testing—cannot be told in a few words. But the whole story can be found in Okonite's Bulletin PG-1053; we urge you to write for it today. The Okonite Company, Passaic, N. J.

The best cable is your best policy

1232



OKONITE OKONITE SINCE 1878 ***insulated wires and cables***



It's wise to specify Ritco Bright Finish Drop Forgings when accurate parts of topmost strength are required. These forgings are produced to your blueprint in steel or non-ferrous metals, in weights from ¼ lb. to 15 lbs. They're smooth and flash-free, require a minimum of machining before assembly into your product.

Remember RITCO for drop forgings, special fasteners, and regular and heavy head finished body bolts. We also offer complete facilities for finishing — machining and grinding. Estimates gladly submitted. Rhode Island Tool Company, 148 West River Street, Providence 1, Rhode Island.

RITCO DROP FORGINGS

Exclusive New England Representatives for Cleveland Cap Screws.

SERVING AMERICAN INDUSTRY SINCE 1834

(*Continued from page* 312)

5. Precision Measurement of Workpieces
6. Selecting the Right Tool Steel
7. Machining Aluminum, Number 1
8. Metallizing
9. Machining Plastics, Number 1
10. Machining Aluminum, Number 2
11. Machining Plastics, Number 2
12. Machining, Repairing and Heat Treating Cast Iron Work Pieces.

SALESMAN'S SAMPLE CASE MADE OF CORRUGATED BOARD

The unique, lightweight sample case illustrated, which was made for Bostitch, Westerly, R. I. serves not only as a compact package for salesmen for displaying hand staplers, but it also serves as a sample of the work done by the company's machines, and the practicality of using staples with corrugated board.



Made by the Hinde & Dauch Paper Company, Sandusky, Ohio, the case has a removable tray divided into different sized compartments, and an expansion file folder stapled to the box lid is used for storage of printed matter.

AMEND REG. 18, STEEL CONTROLLED MATERIALS, CLASS B PRODUCTS

An upward revision of automatic allotment limits on the procurement of steel controlled materials by producers of Class B products during the second and succeeding quarters of 1953 was announced by the National Production Authority, Department of Commmerce.

The action, which is in the form of an amendment to Direction 18 to CMP Regulation 1, has been made possible by the rapid recovery of the steel industry following the work stoppage earlier in the year, NPA said.

Specifically, the amended direction permits producers of Class B products, beginning with the second quarter of 1953, to calculate their own allotments on the basis of 100 percent of the total quantity of carbon, alloy and nickel-bearing stainless steel allotted to them for the third quarter of 1952.

The amendment, NPA emphasized, puts steel controlled materials on the same automatic allotment levels as copper and aluminum. Under the revised direction, these levels remain at 100 percent of the total quantity of material allotted for the third quarter of 1952.

For this Automobile Fan Shaft . . .



The right Republic Steel Saved

40% IN COST . . .

3 OPERATIONS . . .

3 INSPECTIONS . . .

AND 1 BIG HEADACHE

Here's another case where Republic Carbon-Corrected Bar Stock replaced a carburizing steel.

Before they switched to Republic Carbon-Corrected Steel Bar Stock for automobile fan shafts, Schwitzer-Cummins Company had been carburizing the steel shafts after machining. This ran up costs, created the headache of carburizing and inspecting, tempering and inspecting, cleaning and inspecting, and finally straightening warped shafts and inspecting.

The Schwitzer-Cummins metallurgist called on our Republic 3-Dimension Metallurgical team . . . the Field Metallurgist, backed up at home by the Laboratory and Mill Metallurgists. The decision was made to change over to Republic Carbon-Corrected AISI-C 1144 Bars. Now, induction hardening and inspection takes the place of the previous 8-step procedure. No warped shafts to straighten, and a better fan shaft that will last longer in your car or truck. Cost is reduced up to 40%.

The help our Republic 3-Dimension Metallurgical Service gave to Schwitzer-Cummins metallurgists is also available to you. It can help you make better products at lower cost. When shall we call?

REPUBLIC STEEL CORPORATION
Alloy Steel Division • Massillon, Ohio
GENERAL OFFICES • CLEVELAND 1, OHIO
Export Department: Chrysler Building, New York 17, N. Y.

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3-DIMENSION Metallurgical Service

Republic COLD DRAWN ALLOY STEEL BARS

REPUBLIC STEEL

Other Republic Products include Carbon and Stainless Steels—Sheets, Strip, Plates, Pipe, Bars, Wire, Pig Iron, Bolts and Nuts, Tubing

WHEN PERKINS GEARS GO IN— TROUBLE GOES OUT!

Specify Perkins custom-made Gears for trouble-free power transmission!



PERKINS MAKES to customers' specifications, in all materials, metallic and non-metallic: bevel gears, ratchets, ground thread worms, spiral gears, helical gears, spur gears with shaved or ground teeth. Have us quote on your requirements.

* A new product is the **PERKINS PRECISION SPRING COILER.** This coiler (patent applied for) turns out precision springs—any type, shape, size from wire sizes .005 to .125. Complete data and prices upon request.

* Another new product — the **PERKINS "BENDIT 15"** — a patented metal forming machine which bends and shapes sheets, rods, strips tubing into innumerable complex as well as simple forms that would be difficult or even impossible to make by other means. Eliminates need for expensive tools or specialized skills. Height 47", net weight 200 lbs. Write us today for descriptive catalog, prices, etc.

PERKINS MACHINE & GEAR CO.

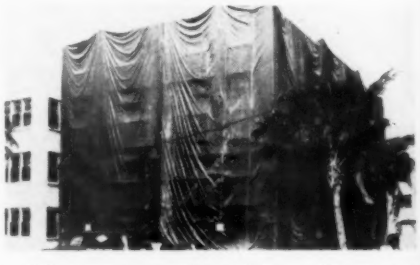
WEST SPRINGFIELD, MASSACHUSETTS

BOOKLET AND SOUND FILM ON MEEHANITE CASTINGS

In order to provide users of castings with an industrial cross-section of the applications of Meehanite Castings, the Meehanite Metal Corp., New Rochelle, N. Y., has published a new 12-page booklet entitled "Meehanite Castings Serve All Industry". The booklet contains 43 illustrations of applications covering nearly every major industry, and also complete tables of the physical properties of the various types of materials available.

Also, the company has made available a thirty minute sound film of the same title. The film is designed for showing before groups interested in the use of high property iron castings for component parts. The film contains 43 frames illustrating applications in nearly every major industry. It is available on a loan basis at no charge.

COVER BUILDING WITH TARPAULIN IN TERMITE EXTERMINATION PROGRAM



The accompanying picture shows use of a gigantic termite-fumigating cover on a four-story building in Miami, Florida. The tarpaulin, known as Duratex is made by applying a synthetic coating to a fiberglas fabric, which is tough and fire-resistant, and a leak-proof medium for the gas used in this particular fumigation process.

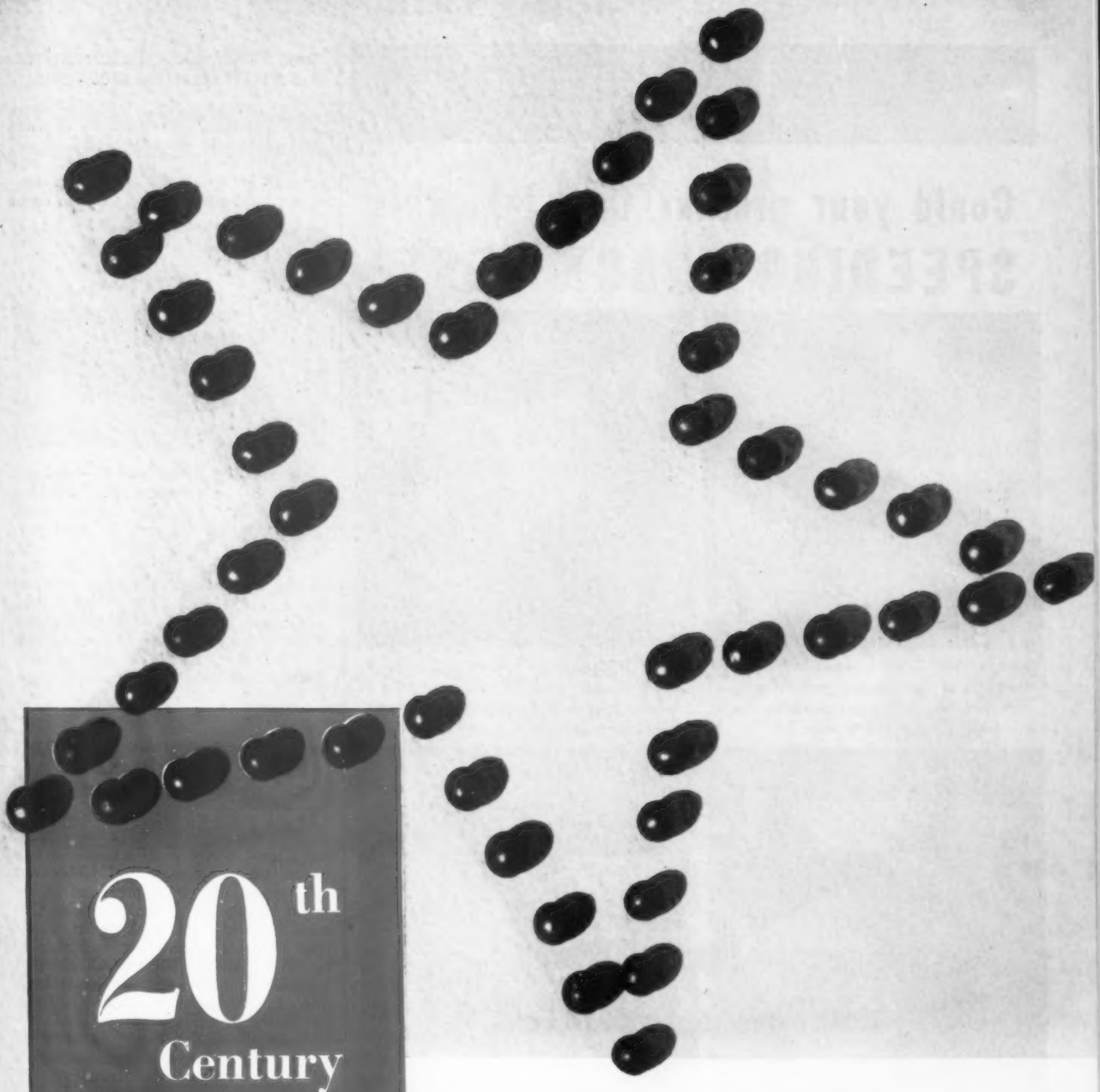
U.S. STEEL BREAKS ALL PRODUCTION RECORDS IN OCTOBER

United States Steel Corporation broke all production records in October by turning out a total of 3,195,761 net tons of steel, an increase of nearly 120,000 tons over the previous high mark of 3,076,575 net tons in March 1952

Scores of U. S. Steel plants and many individual shops in all sections of the country contributed to this production record. A world record was chalked up by the open hearth shop of the National Tube plant in McKeesport, Pennsylvania, where an average output of 51.6 net tons of steel was produced per operating furnace hour during October.

Record production was achieved also by many of U. S. Steel's blast furnaces, rolling mills, and shipping departments in all of its steel-producing centers.

The record-breaking output by United States Steel exceeded by some 300,000 tons the entire estimated monthly output in Russian steel plants.



20th Century
the persuasive abrasive

Looking for a Star Performer?

20th Century* Normalized shot and grit will guarantee you top performance on four scores:

(1) Uniformity
(2) Toughness
(3) Economy
(4) Quality

A malleable abrasive, it's being used in foundries and metalworking plants everywhere.

Our new catalog is yours for the asking.

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THE CLEVELAND Metal Abrasive CO.

811 East 67th Street Cleveland 8, Ohio
Howell Works: Howell, Michigan

One of the world's largest producers of *quality* shot, grit and powder —Normalized—Hard Iron—Cut Wire

A McLAURIN-JONES Product

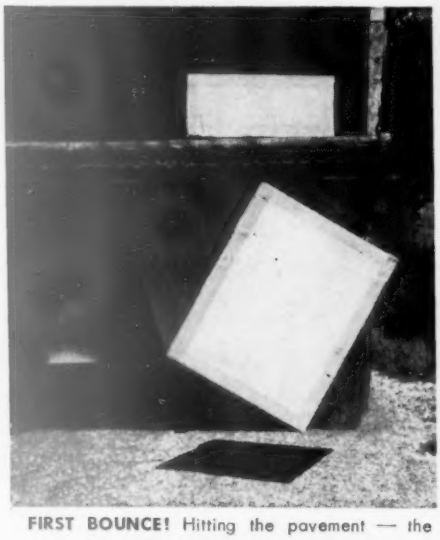
Could your present tape take this SPEEDING TRUCK TEST?



BEFORE TEST carton is sealed with Glaskraft Sealing Tape. Imbedded with glass fibres, Glaskraft has a tear-test strength averaging four to five times greater than 60 lb. kraft.



THERE IT GOES! One hundred and forty-five pounds of carton dropping from the back of a speeding truck. A tough test? Sure! But watch how Glaskraft can take it!



FIRST BOUNCE! Hitting the pavement — the carton bounces off one corner. This puts plenty of strain on the Glaskraft Sealing tape. Everything inside that carton is trying to spread out!



A LITTLE SCUFFED, BUT NO BREAKS! Every tape-sealed seam is still strong and sturdy. Yes, Glaskraft Sealing Tape has what it takes . . . plenty of strength! This test proves it!

Think of how you can cut your carton damage and shipping losses with Glaskraft Sealing Tape.

In addition to its remarkable strength and toughness, Glaskraft is water resistant. It will not rot or weaken even in damp storage. Send for your free sample coil of Glaskraft — plain or printed — today. Test it yourself!

McLAURIN-JONES CO.

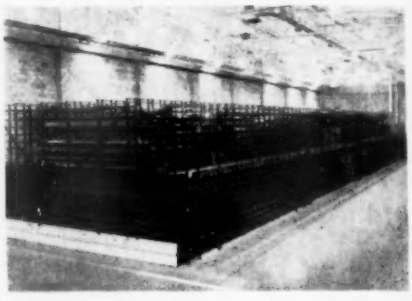
MAKERS OF FAMOUS TANGLEFOOT AND BLUE STAR SEALING TAPES, GLASKRAFT STRAPPING TAPE, IDEAL GUMMED AND HEAT SEAL STAY TAPES AND SOLSEAL WATERPROOF TAPE

BROOKFIELD, MASS. Offices in New York, Chicago, Cincinnati, Los Angeles

Mills located at Brookfield and Ware, Mass., Grand Rapids, Michigan and Homer, La.

BAR STOCK RACK DESIGNED TO SUPPORT LOAD OF 4700 TONS

The accompanying illustration shows large bar stock rack in the El Segundo plant of the Douglas Aircraft Company, which is designed to support a load capacity of 4700 tons. This huge two-section rack fabricated of Unistrut metal



framing is 132′ wide, over 25′ deep, and 14½′ high. It contains 2376 individual compartments 9½″ high by 12″ wide. The lower tiers are used for steel storage including bars, rounds and structure members, while aluminum and magnesium extrusions and various types of tubing are stored in the upper tiers. A cat-walk along the front of the rack 7 feet from the floor, permits easy access to the upper tiers. A six-foot aisle separates the two sections of the rack.

BALANCED ECONOMY DEPENDENT ON 45% INCREASE IN PRODUCTIVITY

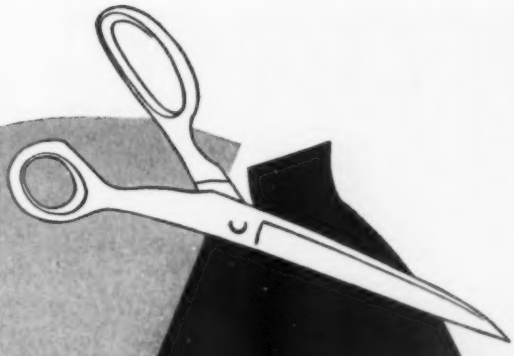
"Industrial productivity must increase 45 per cent within the next ten years if the United States is to maintain a balanced, expanding economy!" This was the keynote of a talk presented at the recent Centennial of Engineering in Chicago, Ill., by Frank R. Benedict, industrial products engineering executive of the Westinghouse Electric Corporation.

Speaking before the American Institute of Electrical Engineers, Mr. Benedict added that this increased productivity could be achieved only by more intensive application of new technological developments throughout industry. The need for this increase, he maintained, is brought about by the "insistent demand for a constantly improving standard of living by a steadily increasing population. Great strides in the treatment of sickness and disease has decreased the death rate, and this, coupled with the high birth rate, has produced a much steeper population growth than has been experienced in the past."

In the face of a serious shortage of scientists, development, and design engineers, industry must meet this challenge for increased productivity with every facility at its command. A major problem in applying new technological development is that of completely coordinating development of products with development of tools to manufacture them. Without such coordination, economical manufacture may not be possible. For many new products, it may be advisable to build full-scale pilot plants to "prove the design for manufacture."

products change





...but this job never changes

assembly costs

component costs



trim assembly's "bite" in production costs with...

Assembly's percentage of total production costs runs from less than 10% in simple "gadgets" to as much as 75% in modern aircraft. Trimming this percentage to the lowest figure possible is a continuing challenge to everyone concerned with design, procurement, and production.

Why not take a tip from the men who make America's best known products? Thousands have cut assembly cost as much as 50% by adopting the simpler P-K fastening method.

After assembly savings are planned, make sure they *pay off* on the assembly line by specifying PARKER-KALON, *the original* Self-tapping Screws. P-K learned long ago how to provide the consistent dependability that keeps assembly trouble-free. You get the proper combination of hardness and toughness. You get sharp threads and accurate size.

And, when desired, you get the able assistance of a fastening specialist, the P-K Assembly Engineer. He'll help you question every fastening, in assemblies you are planning and those you are making now. Start making savings you've been missing. Parker-Kalon Corporation, 200 Varick St., New York 14.

PARKER-KALON®

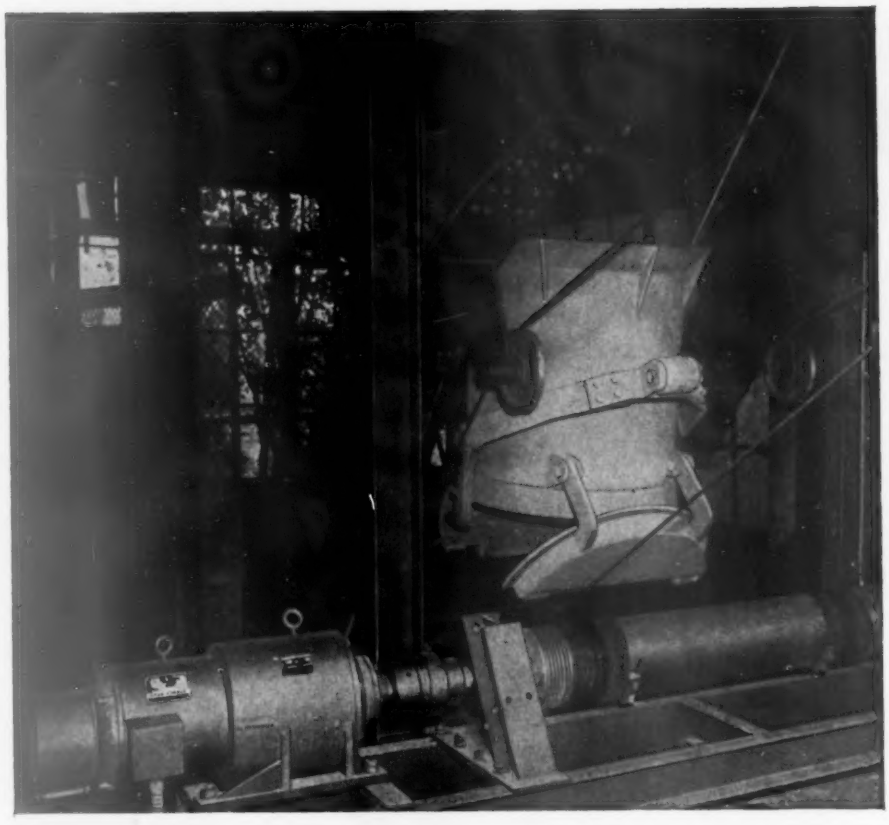
The Original **SELF-TAPPING SCREWS**

Cold-forged **SOCKET SCREWS**

AND OTHER FASTENING DEVICES

PROMPT DELIVERIES NOW
SEE YOUR LOCAL P-K DISTRIBUTOR





"YEARS OF LIFE IN TOUGHEST FOUNDRY SERVICE"

. . . say Whiting Engineers of Star-Kimble Gear-Brakemotors

The Whiting Skip Charger shown in the photo works two shifts a day, handling heavy charges of metal, coke and stone for the cupola. The Skip Charger must stop the load *accurately* and hold it *positively*. Equipment is subjected to intense heat and heavy concentrations of dirt in the air.

For tough service like that, Whiting powers its equipment with Star-Kimble Gear-Brakemotors, which have *proved* their ability to give years of service with little need for maintenance attention. The quick-acting, positive brake requires little or no adjustment; the motor and speed reducer provide a high factor of safety for heavy overloads. AND . . . motor, brake and speed reducer are a *single*, compact, well-protected unit.

For information on Star-Kimble Brakemotors, with or without the speed-reducing feature, write for Bulletin B-501-A.

STAR-KIMBLE

MOTOR DIVISION

MIEHLE PRINTING PRESS AND MFG. CO.

213 Bloomfield Avenue Bloomfield, New Jersey

POLYTETRAFLUOROETHYLENE FINISH—$75 THE GALLON

A genuinely unique kind of paint with a name equalled only by its $75. a gallon cost—Teflon polytetrafluoroethylene finish, presents various unusual characteristics, one of which is that practically nothing will stick to it. It is being tested, therefore, as a coating on bread baking pans because the pans require no greasing before each bake. Elsewhere in bakeries where dusting with flour has been required to prevent dough from sticking, Teflon has solved the problem and increased output in so doing.

The new finishes seem to be the cure for various industrial problems where stickiness is involved, such as in the packaging industry or wherever adhesives are used and glue sticking to machine parts prevents accurate and efficient operation; also where sticky substances such as powdered soap, rubber, candy and frozen foods are apt to cling to the smoothest metal surfaces.

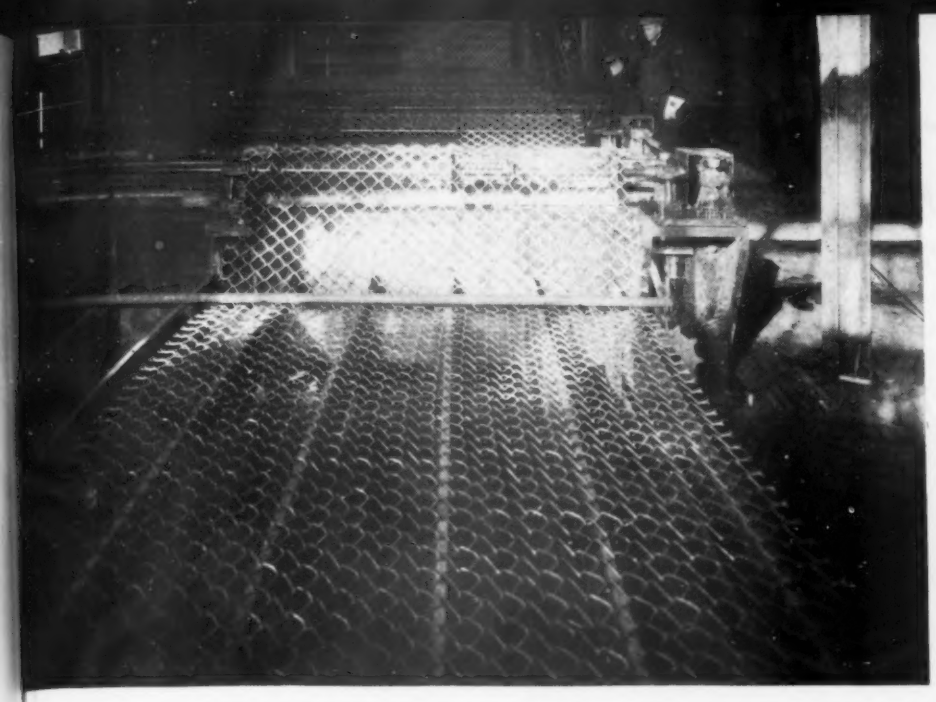
The new polytetrafluorethylene finish is a product of the DuPont paint plant at Philadelphia. It is described as being a water suspension of a new plastic which has such a high chemical, heat, and moisture resistance that it is also used to prevent corrosion of equipment and as electrical wire insulation.

It is an inherently expensive material to produce and will probably never reach a price level that would qualify it as a consumer product. Moreover, the finish must be fused at about 750 deg. F. in special equipment.

FLUORESCENT LAMP NEW 'KING OF ILLUMINANTS'

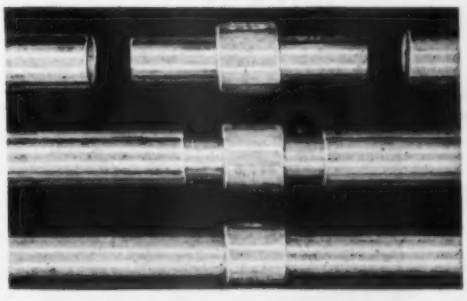
The fluorescent lamp has caught up to and passed the familiar incandescent lamp bulb as the chief electric source of general light in this country, according to the Lamp Division of the General Electric Company. The fluorescent lamp is three times as efficient as the incandescent bulb and lasts more than seven times as long, according to Fred F. Harroff, G-E vice president and general manager of the campany's Lamp Division. In 1941 the quantity of light produced by fluorescent lamps was but 5½% of the total. By 1946 the percentage had jumped to 25, and now for the first time the balance has tipped in favor of fluorescent lighting.

However, in spite of the rapid growth of fluorescent light, large incandescent lamps are being used in increasing numbers year after year. According to Mr. Harrop, 950 million of them or nearly half again as many as the total output of fluorescent lamps since their inception, were made in the United States in 1951. During the past decade there has been a tremendous growth in the demand for more and better lighting, and during that period there has been an increase of three and one-half times in the amount of light used in this country. Much of the increased consumption of light is attributed to the efficiency of fluorescent lamps and to the growing proportion of them in use.





TERMINAL POSTS AND POST TOPS

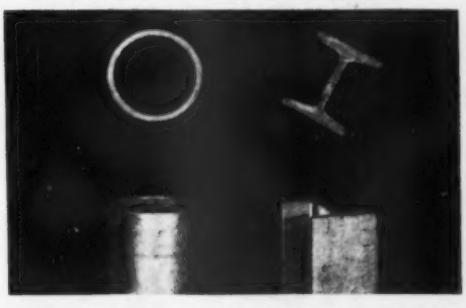


NEW TOP RAIL COUPLING

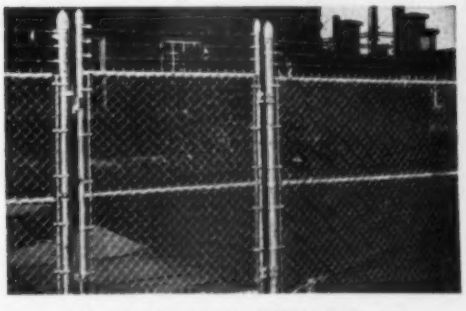
*CONTINENTAL Fence Features For Long-Lasting Property Protection

- Fence fabric is hot-dip galvanized—after weaving
- Heavy, modern post caps and barb-wire arms
- Snug-fitting inside-outside couplings
- Sturdy, closely spaced line posts in two styles
- Improved, pivot-type hinges—welded gates
- Extra ties hold fence fabric securely to posts and rails

You get more dollar value fence protection with Continental Chain Link fence. Rugged fabric is galvanized after weaving . . . heavier line posts and rails keep Continental fence in perfect alignment. Easier-operating gates swing on improved pivot hinges, and you get more ties to secure the fabric for longer fence life. Continental fence engineers plan and erect your fence for most effective, low-cost property protection. Write Continental at Kokomo, Ind., or contact nearest sales office.



TUBULAR OR H-SECTION LINE POSTS



SMOOTH-OPERATING GATES

Planned and Erected to Fit Your Property



Continental's experienced fence engineers help you plan and lay out fence, tailored to fit your property.



Line posts are solidly set in concrete—fabric carefully stretched and secured for permanence.



MORE POST AND TOP RAIL TIES

* Trade Mark Reg. U.S. Pat. Off.

CONTINENTAL STEEL

CONTINENTAL STEEL CORPORATION

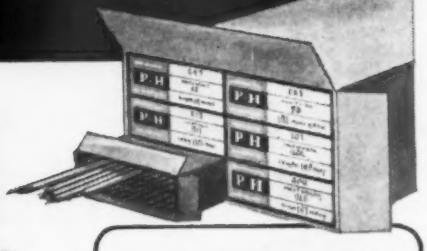
GENERAL OFFICES • KOKOMO, INDIANA

PRODUCERS OF *Manufacturer's Wire* in many sizes, shapes, tempers and finishes, including Galvanized, KOKOTE, Flame-Sealed, Coppered, Tinned, Annealed, Liquor Finished, Bright, Lead Coated, and special wire. ALSO, Coated and Uncoated Steel Sheets, Nails, Continental Chain Link Fence, and other products.

THE P&H MAINTENANCE PACK PUTS THE RIGHT ROD FOR THE JOB AT YOUR FINGERTIPS!



Handy, small-package assortment of electrodes for repair and maintenance welding



NEW P&H Maintenance Pack

You no longer have to buy seldom-used rods in quantities larger than you need. For now, with the new P&H Maintenance Pack, you can keep some of each type on hand economically — and get replacement packages as you need them.

There are five different kinds of electrodes included in the P&H Maintenance Pack. It equips you to do all kinds of repair and maintenance jobs — and get fast, easy, sound welds. All rods are packaged to stay dry — and are clearly identified to make proper selection easy.

Be ready to meet every emergency. Save time, trouble, and money. Order a P&H Maintenance Pack from your P&H representative or local distributor. Mail coupon for name of one nearest you, and for further information.

$13.50

for complete assortment of five different kinds of electrodes (Approximately 27 lbs.)

1. AC-3, 1/8", 5/32", 3/16" — For all position welding of mild steels and sheet metal. AC or DC.
2. AC-1, 5/32" — For mild steels. AC or DC.
3. 70LA2, 5/32" — For high-carbon, alloy, high-sulfur, free-machining, cold-rolled, and other hard-to-weld steels. Ideal for steel casting repairs. AC or DC.
4. Harstain, 1/8" — For spring steels and stainless steels of all kinds. AC or DC.
5. Nicast, 1/8" — For machinable welds on cast iron. Nicast welds are strong and non-porous.

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POWER SHOVELS • CRAWLER AND TRUCK CRANES • OVERHEAD CRANES • HOISTS • ARC WELDERS AND ELECTRODES • SOIL STABILIZERS • DIESEL ENGINES • PRE-FABRICATED HOMES

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Send me further information on new P&H Maintenance Pack and name of my nearest dealer.

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Analyze Purchase Procedures

(*Continued from page 79*)

"delaying tactic". This is the situation in which an improved procedure is "talked to death" or is killed by being "put on ice" until everyone agrees. Consideration and agreement are important, but prompt decision and almost immediate adoption of new procedures is imperative for progressive results. When doubts exist, introduce new procedures on a trial basis to try pilot installations.

Auditing New Procedures

As a guide for evaluating newly installed procedures, the following test questions are offered:

Have the old procedures been discontinued or eliminated?

How effective are the new procedures?

What operating expenses have been saved, and what expenses incurred, by the new procedures?

Is the new procedure clearly understood?

What changes or additions should be made in the instructions?

Has performance been improved?

What are the apparent attitudes regarding the new procedure?

Have the necessary facilities, forms, and supplies been furnished to implement the new procedure?

How Much to Expect

Procedures are essential tools in the execution, coordination, and control of business activity. How effective they are will be reflected in employee morale, operating costs, production speed, number of employees needed, and quality of performance. A few warnings should be noted to valid false expectations from a procedures study and resulting manual:

Procedures are *not a substitute* for mental activity, judgment, and decisions.

Procedures that *do not fit* present circumstances must be modified, suspended, or "broken" (with supervisors' approval) until new procedures are installed; therefore, keep them up to date.

Effective procedures must have a *sense of proportion* according to the importance of operation.

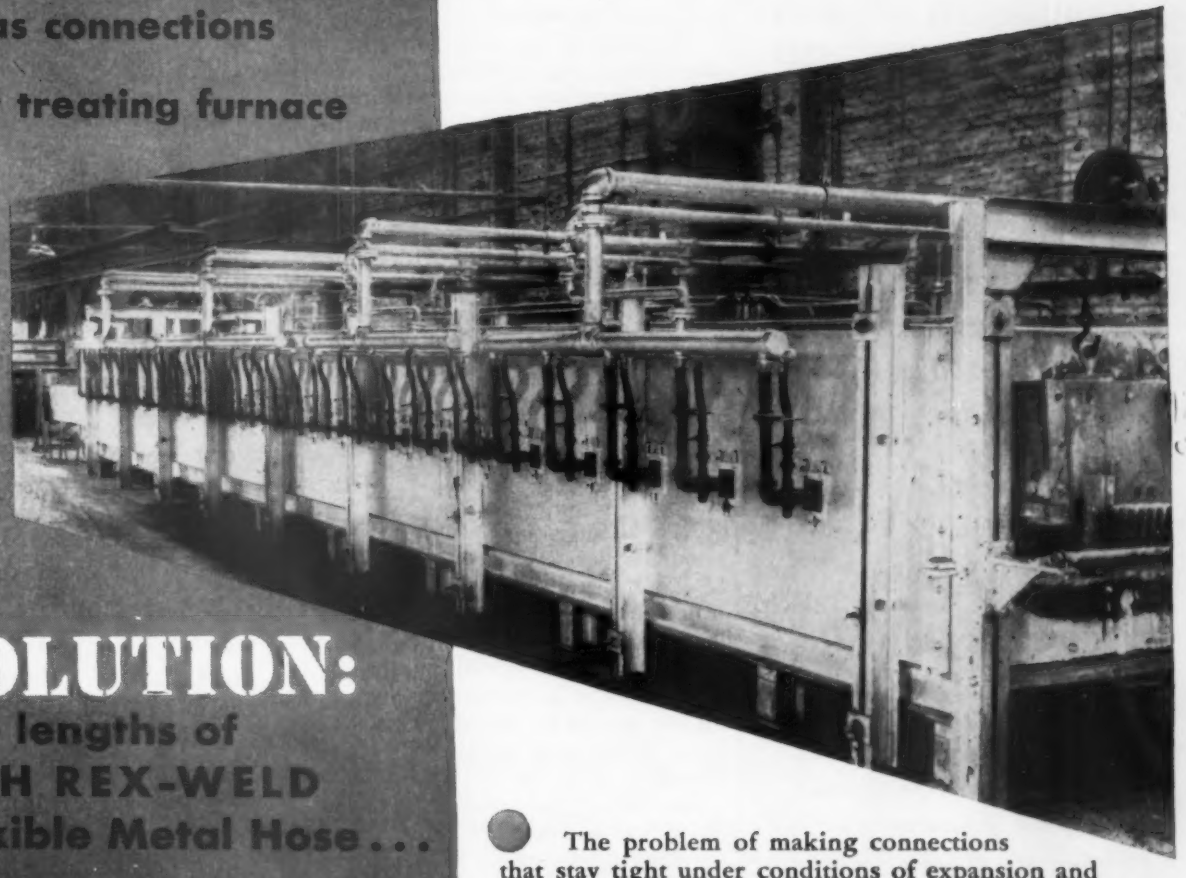
Too often, procedures tend to *sustain habitual methods,* rather than showing the "better way".

Resentment and resistance to

(*Please turn to page 324*)

PROBLEM:

How to absorb expansion and contraction in gas connections on a heat treating furnace



SOLUTION:

Use lengths of CMH REX-WELD Flexible Metal Hose . . .



The problem of making connections that stay tight under conditions of expansion and contraction are easily solved with CMH REX-WELD Flexible Metal Hose. The furnace illustrated above is a typical example—when it is brought up to temperature, the gas burners expand. Rigid connections would be put under severe strain with serious danger of failure. Short lengths of REX-WELD inserted in the lines safely absorb this expansion.

Wherever troublesome connection problems exist, it will pay you to suggest CMH Flexible Metal Hose. Whether the problem is caused by expansion and contraction, vibration, misalignment or flexation, CMH Flexible Metal Hose provides the most satisfactory and most economical solution.

Your Flexonics distributor will be pleased to quote on your needs. Look for his name in your classified telephone directory, or, if you prefer we'll be happy to send it to you.

Further information is available in most purchasing directories or your Flexonics distributor will be pleased to furnish you with our catalog which gives complete data.

CHICAGO METAL HOSE Division

Flexonics *Corporation*

1310 S. Third Avenue · Maywood, Illinois

Manufacturers of Convoluted and Corrugated Flexible Metal Hose in a Variety of Metals · Expansion Joints for Piping Systems · Stainless Steel and Brass Bellows · Flexible Metal Conduit and Armor · Assemblies of These Components

In Canada: Flexonics Corporation of Canada, Ltd., Brampton, Ontario

Flexon identifies CMH products that have served industry for over 50 years.

CMH

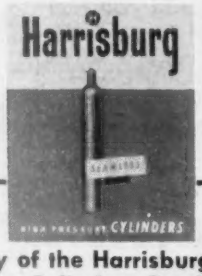
The finest

SEAMLESS STEEL CYLINDERS FOR HIGH PRESSURE GASES

America has ever produced



The character of the manufacturer shows in the product. Harrisburg manufactures a complete line of seamless steel cylinders for storage and transportation of high-pressure gases . . . fixed, liquid, and medical. Sizes, capacities, and types for every purpose . . . made to I.C.C. Specifications in Domestic and Export [illegible]



A copy of the Harrisburg High-Pressure Cylinders Catalog will be mailed promptly on request.

HP52-2

99 Years in Pennsylvania's Capital

Harrisburg Steel CORPORATION HARRISBURG 19 PENNSYLVANIA

Analyze Purchase Procedures

(*Continued from page 322*)

change must be overcome by *education and persuasion.*

Development of better procedures should stress *group participation*—suggestions from workers and supervisors concerned.

Procedures are not an end in themselves, but a means. Thus they are of *secondary value* as compared with the ultimate objectives of the organization and the operations to be accomplished.

Like all tools, procedures may either *help or hinder* operations.

Procedures may cut across lines of vertical authority and responsibility to provide a coordinated result. They must have a starting point, and an *ending point* also.

Procedures programs must have a *continuous approach* to seek a better way; "putting out fires" with intermittent plans is no real solution.

A *bold approach* is necessary to eliminate wasteful methods. When in doubt as to the usefulness of a procedure, cut it out and see what happens.

The final test of all purchasing procedures is *performance*—achieving the desired results at lowest cost, least effort, and within the time needed.

Improving procedures has too often been a neglected road toward purchasing progress. Research in procedures can and will save time and money for the busy purchasing department. We have long concentrated on the vital aspects of purchasing organization and personnel. Procedures have been allowed to follow traditional patterns. Inadequate and deficient procedures can keep purchasing in a continuous state of urgency because time is consumed with mountains of "paper handling". Purchasing leadership can economize on time and energy by embracing a program of procedure analysis and action. Scientific procedures can be the means of providing purchasing with the time and energy to spend on other important purchasing activities.

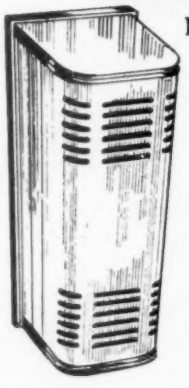
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CHART SHOWS CRANE SIGNALS SAFE LOADS—SLINGS

A heavy cardboard chart in two colors, depicting various crane signals and giving data on Safe Loads for eight-part braided slings and single-part slings, has been published by the Macwhyte Company, Kenosha, Wis.

DEODOROMA

"I make this washroom a pleasant place"



Your premises are often judged by the condition of your lavatories. Foul, stale odors can't be excused when about 2 cents a day can purchase CONSTANT, PLEASANT, EFFECTIVE DEODORIZATION!

The DOLGE DIFFUSEUR marks the thoughtfully maintained lavatory. This sturdy chromium or plastic "sentinel of smells" requires next to no attention. Merely place a DEODOROMA block refill into it about every 90 days. Then there'll *always* be a fresh, fragrant atmosphere *where* it's needed most.

Your choice of three delightful DEODOROMA scents—Rose, New Mown Hay and Ced-O-San.

For SPOT DEODORIZATION

Use DEODOROMA CRYSTALS in any of the above scents; DEODOROMA URINAL BLOCKS IN Ced-O-San only.

CONSULT YOUR DOLGE SERVICE MAN OR WRITE FOR FOLDER EDJ-1044

DEODOROMA

Dependable DOLGE

WESTPORT, CONNECTICUT

Clean floors better...Save money, too

with mops made of Du Pont Sponge Yarn



LASTS MUCH LONGER
—SPONGE YARN IS TOUGH!



MAKES FLOOR WASHING
AND DAMP-MOPPING NEATER



EASIER TO USE
—WRINGS OUT DAMP-DRY



HOLDS MORE WATER—
WON'T LEAVE LINT



EASIER TO CLEAN
—DIRT WASHES RIGHT OUT



WON'T TANGLE,
WON'T SOUR—EASILY STERILIZED



the same material as the popular



Du Pont Cellulose Sponge

Made of the same wonderful, work-saving material as famous Du Pont Cellulose Sponges, these new mops do a better, neater all-round cleaning job . . . and they do it quicker! And, you save money because they last longer than ordinary mops—no wonder more and more institutions are finding it *pays* to use mops made of Du Pont Sponge Yarn!

Find out for yourself . . . give sponge yarn mops a trial and you'll see how much time and money they save you. Ask your supplier for these mops—or send coupon for *free* booklet and further information on where you can get mops made of Du Pont Sponge Yarn in your vicinity.

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150th Anniversary

Better Things for Better Living
. . . through Chemistry

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E. I. du Pont de Nemours & Co. (Inc.)
Cellulose Sponge Sec. P-12 Wilmington 98, Del.

Please send me my free copy of the booklet describing Du Pont Cellulose Sponge Yarn's advantages for floor cleaning and maintenance.

*Name*_____

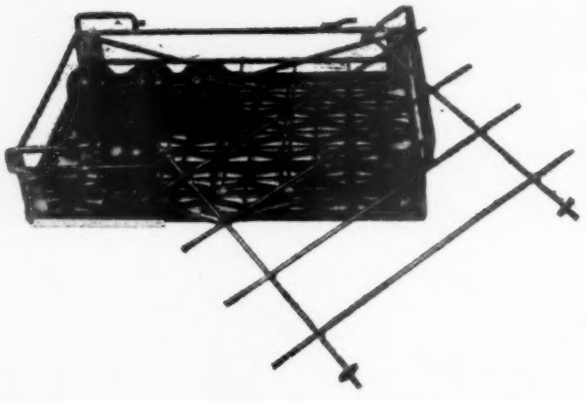
*Firm*_____

*Street*_____

*City*_____ *State*_____

ROLOCK
HEAT AND CORROSION RESISTANT
FABRICATED ALLOYS

New Equipment For Processing STEEL SHELL CASES



Before each draw in forming steel shell cases, the material goes thru a cycle of processes while contained in work holders. Details of processes and handling, however, will vary in different plants.

Rolock has built this Inconel fabricated-welded basket to handle the cup and first draw. (A deeper one handles the later draws.) Traveling on rolls and chains, now flat, again on end, suspended and tilted, always heavily loaded, the basket is designed to stand up under an unusual variety of conditions. The cases, separated by dividers, rest on the bottom. Handling two depths of cases, the retaining cover fastens at two heights above bottom. Basket weight 110 lbs., load 290 lbs., ratio exceeds 2½ to 1. By using a high nickel alloy, true conservation of nickel is achieved in cycles of heat, quench, and acid.

This is but one example of Rolock special shell case equipment. Other types, as well as fixtures used before the cupping operation . . . and others used after the final draw, for washing and lacquering . . . have been designed. Ask us for details.



SEND FOR NEW B-9 CATALOG (*Corrosion Resistant Section*)

Offices in: PHILADELPHIA • CLEVELAND • DETROIT • HOUSTON • CHICAGO • ST. LOUIS • LOS ANGELES • MINNEAPOLIS • PITTSBURGH

ROLOCK INC. • 1272 KINGS HIGHWAY, FAIRFIELD, CONN.

JOB-ENGINEERED for better work
Easier Operation, Lower Cost

13RL66B

Measures of Performance

(*Continued from page* 100)

are indeed getting into difficult territory.

Utility operations vary so widely in size of company, nature of the territory served, and the wide differences of functions for which the purchasing executive is responsible, that it is a discouraging prospect to try to find measurement help in such inter-company comparisons. I presume the same is true in other industries.

Yet there is some basis for comparison if we are willing to dig deep enough and with sufficient persistence. How do you know that your own purchasing pattern is the best one? Take, for instance, just the matter of department size. Within the group of eight companies surveyed by our committee, purchasing department size ranged from seven employees to more than a hundred.

These were, of course, companies of different sizes which accounted for part of this difference. And no doubt in each of these companies the general feeling is that the size of department is approximately correct, and that the procurement function is being conducted with proper skill and efficiency. How do we know? Have you ever tried, by study of and comparison with purchasing departments in other companies, to determine whether or not your own operation is too small or too large?

Does not the very fact of size differential indicate that our apparent acceptance of our own size as normal would well deserve some critical self-analysis? Could you do a more effective job in your company with one or two or a half dozen additional employees? Have you looked at the size of your operation with a critical eye to see whether or not some functions now performed could be reduced, combined with others, or eliminated entirely?

In a recent discussion, the president of my own company asked me, "Suppose you were made the president of some electric utility with which you were entirely unfamiliar; how would you appraise the quality and performance of the purchasing department?"

Well, how would you? What measures of performance, what proofs of efficiency and value would you apply? What would you expect

(*Please turn to page* 330)

How to spot a truly pre-lubricated motor

You are looking at the first motor made to utilize pre-lubrication to its *utmost.* Notice the bearing hub. It was *designed* for a pre-lubricated bearing. There are *no* grease fittings or plugs. The way to grease this modern motor is *don't.*

Westinghouse—the pioneer in pre-lubricated motors—announced in 1948, after 15 years of tests in the laboratory and on the job throughout industry, that Life-Line motors needed no further lubrication. That meant what it said; still means it. You don't have to lubricate them in six months or six years. You don't have to lubricate them—period!

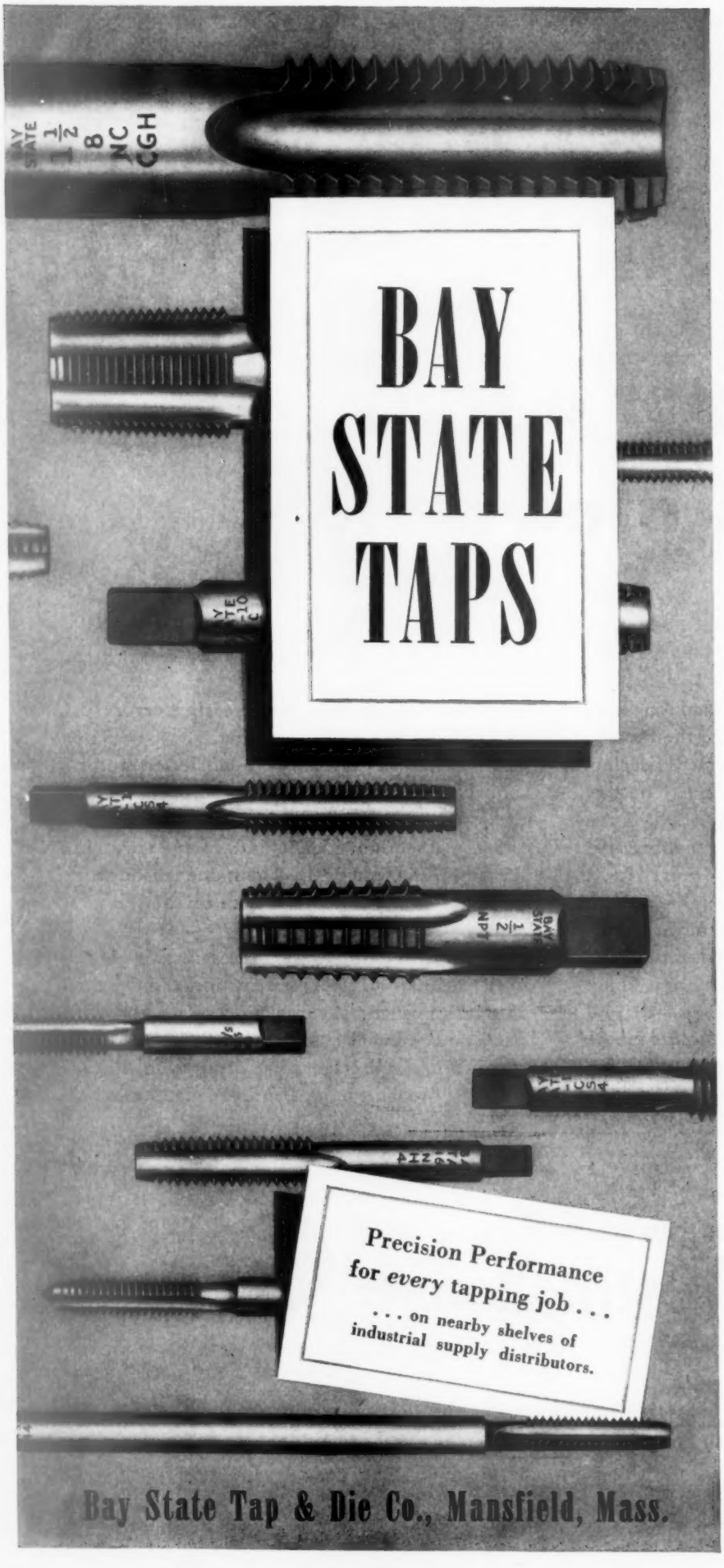
This means you can't grease a Life-Line motor incorrectly. No chance to push dirt into bearings . . . to force grease through seals and into windings. No chance for greasing errors at all! Lubrication problems are out.

So be sure you get a truly pre-lubricated motor. Look for one that has no grease fittings. You'll know then it means what it says and needs no greasing attention. You'll find your answer in Life-Lines. Remember this is but one reason why Life-Lines offer you more service on the job . . . less servicing.

Ask your Westinghouse representative about other reasons—all steel construction and greater electrical strength. And ask for a free copy of "Facts on Pre-Lubricated Bearings" (B-4378), or write Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania. J-21705-A

YOU CAN BE SURE... IF IT'S

Westinghouse



Measures of Performance

(*Continued from page 326*)

the head of the purchasing group to produce in cold facts and figures to justify his function in size, make-up, and over-all costs?

A part of my reply had to do with evaluating people. The degree to which the selection and training of personnel is carried out is certainly a measurement of performance and efficiency in any purchasing department. Have you a program for providing top quality personnel for purchasing ten years from now? It's a measurement of your performance.

When all is said and done, it seems to me that for purchasing executives, the primary questions which cry out for some sort of measurement are:

Do you save your company money?

By what methods?

How much?

Is the cost of these savings excessive?

What can you do to save more?

I believe it is possible to find answers for most of these questions, but they will not come easy. It will take a considerable and constant effort on the part of each one of us to really find such measurements. It will take a high degree of courage to suggest changes which may be the result of our investigation in this field, particularly if the findings include some indicated reduction in personnel or transfer of functions to some other group.

In my contacts with purchasing people, I have been surprised to find that although most of them have statistics available on which some measures of performance might be based, only a few are using them for this purpose or are making any analysis of results obtained, either for their own benefit or for reporting purchasing performance up the line.

In spite of all that has been said on the matter, the feeling is held by some purchasing people that it is not necessary to measure purchasing performance. In the utility field, at least, these people feel that purchasing's value is already properly recognized by other departments and top executives. This is a dangerous conclusion for *any* executive to hold, and it is a particularly dangerous one in the purchasing field.

We all know that in the last few

(*Please turn to page 332*)



Accumet Precision Castings

for all industrial uses

With Accumet Precision Castings, Crucible has developed a process of producing precision investment castings in intricate designs with the smooth, satiny finish and closely-held dimensions characteristic of "lost wax" castings. Casting tolerances start at plus or minus 0.005" although under certain circumstances closer tolerances can be held. This relatively new metal forming process solves many difficult problems in design, tooling and production of metal components.

fuel injectors from precision castings



Fuel injectors and carburetors for aircraft are mechanisms containing a variety of peculiarly shaped component parts. The usual procedure is to use hardenable, chrome stainless steels, Types 416 and 440F, which are most adaptable to easy machining. However, to save costs in machining from bars, stocks and forgings, Crucible applied Accumet Precision Castings. The close size control and good surface finish of the castings eliminate many costly machining operations — saving manpower, machine time and tooling expense.

more information available on castings

Long a leader in the development of precision investment castings, Crucible offers you the services of an alert metallurgical staff to help you profitably apply these specialty steels to your operation. Write us for more detailed information. CRUCIBLE STEEL COMPANY OF AMERICA, General Sales and Operating Offices, Oliver Building, P. O. Box 88, Pittsburgh 30, Pennsylvania.

CRUCIBLE first name in special purpose steels

52 *years of* Fine *steelmaking* **PRECISION CASTINGS**

REX HIGH SPEED • TOOL • STAINLESS • ALLOY • MACHINERY • SPECIAL PURPOSE STEELS

OVER ONE HUNDRED YEARS OF CONTINUOUS SERVICE. ROUNDS, SQUARES, FLATS, HEXAGONS, OCTAGONS

ANNOUNCING . . .

WHELCO M

OIL HARDENING TOOL STEEL

WL introduces *"Whelco"* – a new tool steel of M grade – a new steel of maximum toughness, hardness and strength – a steel to assure maximum results at low cost! *"Whelco"* offers great penetration of hardness, great toughness at high hardness, wide hardening range, fine grain structure, and desirable non-deforming characteristics. *"Whelco"* has good forging properties and is readily machinable in the annealed condition. All WL warehouses stock *"Whelco"* M tool steel in a wide variety of flats and squares. Call your nearest WL man for a trial order – the results will speak for themselves!

WL steels are metallurgically constant. This guarantees uniformity of chemistry, grain size, hardenability – thus eliminating costly changes in heat treating specifications.

Write today for your FREE COPY of the Wheelock, Lovejoy Data Book, indicating your title and company identification. It contains complete technical information on grades, applications, physical properties, tests, heat treating, etc.



BILLETS AND FORGINGS FOR PRODUCTION, TOOL ROOM AND MAINTENANCE REQUIREMENTS

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Measurers of Performance

(*Continued from page 330*)

years more and more recognition has been given to purchasing as a top function in business. What we tend to forget is that this recognition has been earned by a long record of high quality performance by purchasing executives. Does it appear reasonable that recognition of such performance has been obtained without any measurement of it by other department heads and top management executives in your company or mine?

In one form or another, every one of us in the purchasing field is constantly measuring the performance of his department and its key personnel. It is equally true that our own performance is being constantly measured by those higher-level executives to whom we are responsible.

No purchasing executive can afford to rest on past laurels. No one of us can assume that we are now doing the best job possible. Industry needs inquiring, fighting, courageous purchasing executives who are constantly searching for changes and improvements in the procurement field, to keep abreast of other vital functions of top management in this competitive age when private business must defend itself at all costs against the growing encroachment of socialism.

The purchasing agent's job is a constant challenge to better performance. How good can a purchasing job be? The one answer is: *Better than it is now.* It is of increasing importance to all of us to attain this better performance, and, in so doing, that we seek and find more satisfactory ways by which that better performance can be adequately measured.

New Concepts in Purchasing

(*Continued from page 70*)

raw material inventory.

The true costs of inventory are seldom recognized. It is a little known fact that, generally, carrying charges on inventory amount to 20% of the value of the material each year. Therefore, an excessive inventory which must be carried for many months can quickly wipe out a sizable purchasing saving that might have been negotiated by the buyer.

(*Please turn to page 334*)



over-all service...







The responsibility of the Torrington engineer does not end with a recommendation for a particular type of anti-friction bearing. He makes every effort to "follow through" to see that the bearing continues to give the best possible performance, with a minimum of maintenance.

Over-all service—starting with the original design and continuing through in-service operation—has helped to produce the *lasting* solution to the friction problems of many manufacturers. Why not discuss *your* application with a Torrington engineer today?

THE TORRINGTON COMPANY
South Bend 21, Ind. Torrington, Conn.
District Offices and Distributors in Principal Cities of the United States and Canada

TORRINGTON BEARINGS

Spherical Roller • Tapered Roller • Straight Roller • Needle • Ball • Needle Rollers



they're a
CLEVELAND *Top Quality* specialty

Here's SIZE in Cap Screws. When you want larger than the listed 1½" diameters, it's good to know that Cleveland can serve you on sizes *up to* 2½"—in lengths to your requirements. This applies to Hex Head screws, bright or heat treated. We also make extra large Flat Heads, up to 1" dia. (Usual maximum stock is ¾".) We try to carry a fair assortment whenever possible. Write for sizes and prices.



Cleveland extra-size cup point Set Screws often fill an unusual need. Maximum, 1½" diameter, 10" length.

CLEVELAND *Top Quality* FASTENERS

THE CLEVELAND CAP SCREW COMPANY
2922 East 79th Street, Cleveland 4, Ohio
Warehouses: Chicago • Philadelphia • New York • Providence
originators of the Kaufman DOUBLE EXTRUSION Process
Ask your jobber for Cleveland Fasteners

New Concepts in Purchasing

(Continued from page 332)

In addition to working with suppliers to minimize lead time, the purchasing agent has several other opportunities to reduce raw material inventories. For example, by becoming thoroughly familiar with his suppliers' manufacturing processes and distribution methods, he can take advantage of every opportunity to have the supplier carry basic inventories for him.

During times of material shortages, the purchasing agent can make a substantial contribution by assisting in the balancing of material stocks; that is, he will avoid buying any materials except to the extent they can be balanced with the scarcest item.

He should also educate his suppliers, particularly where large quantities are used day in and day out, of the importance of shipping on the requested delivery date and in the quantities specified.

He must study the capacity of his suppliers so that, if his company is planning an increased schedule, he can immediately make plans to develop additional sources if his present suppliers do not have sufficient capacity to meet his stepped-up requirements.

Finally, the inventory-minded purchasing agent will be alert to capitalize any opportunities for standardization in the materials he buys. This, of course, prevents excessive obsolescence and also holds to an absolute minimum the relatively slow-moving "special" items.

Conclusion

Even though there has been a lot of progress in the purchasing function over the past few years, there still remains a great deal to be done. As I mentioned earlier, the purchasing agent must learn to look for areas which have gone unchallenged. where he can prove to be of real value if he will only "dig in" a little bit.

We feel that our new concepts of purchasing afford definite steps toward improving our operation in these previously unchallenged areas. However, in the final analysis these concepts all revolve around one factor—"People"—properly selected and trained people to whom authority is given to "carry the ball" and who have confidence that they are being backed up. If you do this, I am certain that any program you adopt to improve your operation will be a success.



Another great new DISSTON® product

Diss-Croloy CIRCULAR SAW
for non-ferrous metals and plastics

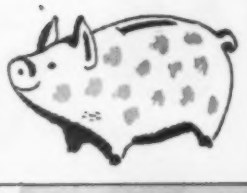


Here's a new saw designed to give more cuts per saw dollar. It is carefully made from tough, high-carbon, high-chrome Disston steel . . . with edge-holding qualities superior to any steel saw heretofore available.

Diss-Croloy Circular Saws have a longer cutting life, and require less frequent sharpening...minimizing downtime losses. This means more and better cuts from each blade, with a considerable reduction in sawing costs.

The new Diss-Croloy Circular Saw is made in 6″, 8″, 10″, 12″, 14″, and 16″ diameters. You can use it to cut any non-ferrous metal (such as copper, brass, aluminum, magnesium, bronze) or plastics (as Formica, Masonite, Lucite, Plexiglas, Micarta). Give one of these amazing, economical saws a trial. You can count on them for better quality, higher production and lower costs.

For prompt service, expert advice, reliability, many economies
SEE YOUR DISSTON DISTRIBUTOR



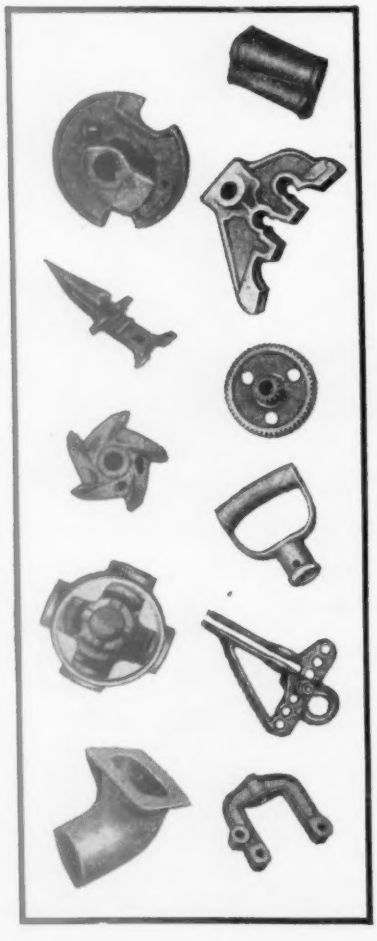
HENRY DISSTON & SONS, INC.
1233 Tacony, Philadelphia 35, Pa., U.S.A.
Canadian Factory: 2-20 Fraser Ave., Toronto 3, Ont.



We haven't heard of any dog sleds using Ansul equipment. But if they do there is no need for concern because of the low temperatures involved.
Hundreds of Ansul Dry Chemical Fire Extinguishers are protecting hazardous locations and special equipment in the far north.

Standard Ansul models are approved for operation from –40°F. Special low temperature models are approved by Underwriters Laboratories for operation down to –65°F. All Ansul extinguishers provide effective and dependable protection for flammable liquid, gas and electrical fires.

SEE PAGE 146



MALLEABLE IRON CASTINGS that you can depend upon!

The right connection—for the malleable iron parts you need—can be a source of satisfaction to you.

Many, many leading makers of durable goods use Moline Iron Works Malleable Iron Castings to uphold the quality of their products.

Good service, quality control and reasonable prices are three reasons why your connection with Moline Iron Works can be both a pleasant and profitable one. We invite your specifications for quotation.

The parts shown here are representative of our production for automotive, farm implement, appliance and railroad customers.

MOLINE IRON WORKS
Moline, Illinois, U. S. A.



Ordering by Trade Name

(*Continued from page* 85)

laid down in that long-ago English decision which the Supreme Court here adopted as authority.

"The rule invoked here is that where a manufacturer contracts to supply an article which he manufactures, to be applied to a particular purpose, so that the buyer necessarily trusts to the judgment of the manufacturer, the law implies a promise or undertaking on his part that the article so manufactured and sold by him for a specific purpose and to be used in a particular way, is reasonably fit and proper for the purpose for which he professes to make it and for which it is known to be required.

"But is also the rule as expressed in the text books and sustained by authority, that where a known, described and definite article is ordered of the manufacturer, although it is stated by the purchaser to be required for a particular purpose, still, if that known, described and particular thing be actually supplied, there is no warranty that it shall answer the particular purpose intended by the buyer."

Traveling Requisition

(*Continued from page* 97)

start. It has since been extended to other departments where direct purchases are required, such as the Cafeterias, Engineering and Loss Control Department. At the present time, practically all of the items stocked in the Supply Department are on traveling requisitions.

Each division of the Building Department—such as the Carpenter Shop, Paint Shop, Plumbing Shop, etc., has its own set of Postindex books containing cards for all their separate items. The same is true of the Medicine and Hygiene Department, where the Dental Division, X-Ray and Laboratory each maintains purchase requisition cards for the supply items peculiar to its individual function.

In getting started, the individual cards were prepared *only as a given item was to be requisitioned.* At the same time, the department making out the requisition prepared the corresponding Purchase Record card, using the same specification. In this way, no great initial or peak work load was involved, and the Purchasing Department was entire-

(*Please turn to page* 338)

for "Bridgeport" Service

BRASS "Bridgeport" CO.



OFFICES AND WAREHOUSES IN PRINCIPAL CITIES



BRIDGEPORT WAREHOUSE SERVICE

The Bridgeport warehouses are designed to supply from stock limited quantities of sheet, rod, wire or tubing. It is the policy of the company to maintain adequate warehouse stocks at all times so that small orders can be filled without delay.

The fabricator is in a position to obtain promptly metal to fill orders for experimental work or to start production runs, while waiting for mill shipments.

Bridgeport warehouses make every effort to carry the variety of alloys, sizes and gages which fulfill the requirements of the locality they serve.

To take care of the maximum range of widths of strip metal, slitting service is available—not only to serve warehouse stocks, but also to make customers' stocks of non-ferrous strip metal more flexible.

Bridgeport's Warehouse Stocklist carries weight tables and a technical digest giving the properties of the most popular copper-base alloys. If you do not have a copy, ask your nearest Bridgeport office.

Mills in Bridgeport, Conn. and Indianapolis, Ind.

In Canada: Noranda Copper and Brass Limited, Montreal

BRIDGEPORT BRASS COMPANY

"Bridgeport" BRASS CO.

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FOR SPECIALTY WIRES A SPECIALTY MILL...



Johnson plants in Worcester, Akron and Los Angeles are specialty mills, equipped for the development of specialty wires. All wire drawn in these plants is always under strict laboratory control all the way from the basic material to finished product.

JOHNSON

JOHNSON STEEL and WIRE CO., INC.

Worcester 1, Massachusetts

New York Philadelphia Detroit Akron Chicago
Atlanta Houston Tulsa Los Angeles Toronto

SUBSIDIARY OF PITTSBURGH STEEL COMPANY

Traveling Requisition

(*Continued from page* 336)

ly relieved of the detail of setting up its original record, though the responsibility of preparing a replacement card after the one in use has been fully used is recognized as a Purchasing Department duty. Thus, no additional clerical work was required in getting the program started, and the two corresponding record files grew together, item by item, as required in the operation of the system. In the normal course of events, it was estimated that about one year would be required to complete the cycle.

Needless to say, complete understanding and cooperation between the participating departments is most essential. Before the system was installed in the various departments, a meeting was held with key personnel of each department. They were cautioned about the need for accuracy in preparing the purchase requisition cards and asked to consult with the Purchasing Department in the event of any question as to proper specifications, etc. As each new group of cards was received in the Purchasing Department, they were carefully checked for accuracy. The Purchase Record card was then placed in our file.

At the present time, we have 80 books, containing over 11,000 Purchase Record cards, in our department. The record is complete, accurate, and up to date. It is easy to post, and handy for all interested persons to review.

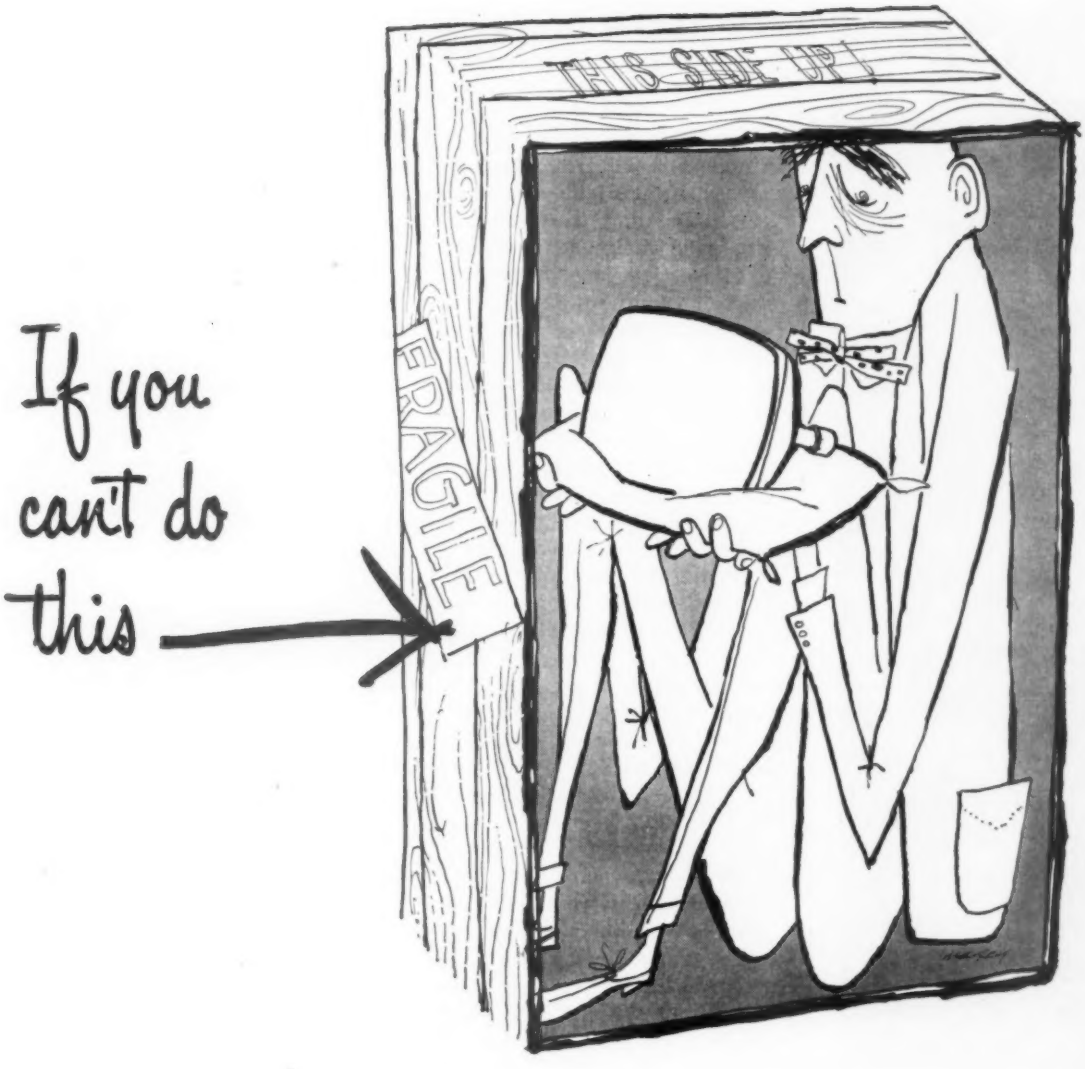
I cannot say exactly how much it has meant in dollars and cents to The Travelers, but the savings have been very substantial. Every department head concerned is enthusiastic about the traveling requisition because it has meant such a saving in clerical time to them.

Progress and Profits Through Standards

(*Continued from page* 110)

ASA has been successful, in practical accomplishments such as these because every vote counts. All those concerned with the development of a new standard—the manufacturer, the supplier, and the consumer—take a hand in democratically working out a new standard. Every group substantially interested

(*Please turn to page* 340)



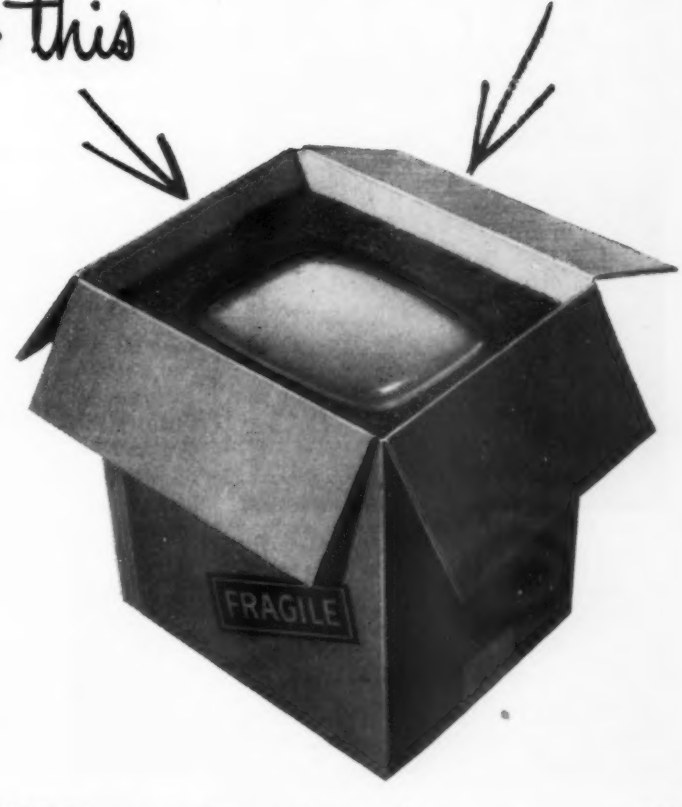
If you can't do this

let Hairflex do this

Shock-absorbing, highly resilient HAIRFLEX literally *floats* your product in a protective cushion made up of lively curled hairs locked in place with rubber. HAIRFLEX protects against vibration as well as against the shocks of unavoidable rough handling.

Besides the savings from reduced breakage in transit, HAIRFLEX cuts costs by saving time in the shipping room. And, equally important, die-cut HAIRFLEX pads can be re-used many times. Finally, its light weight saves money in shipping charges.

For a free booklet giving details of the application of HAIRFLEX to shipping problems, write to Armour today. It can help you save real money—in shipping, time lost and in damages.



If it's fragile, if it's valuable—ship it in HAIRFLEX

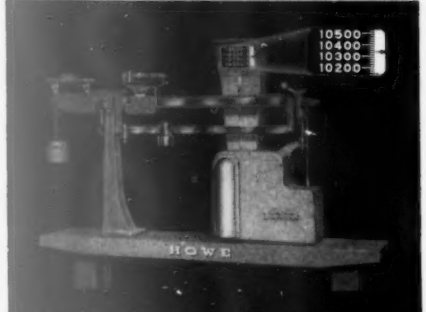
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Scales



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Modernize your beam scales with Howe 77 Weightographs

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Please send me:
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HOWE 77 WEIGHTOGRAPH FOLDER ☐
HOWE HAND TRUCK CATALOG NO. 15-B ☐

Name _____
Title _____
Company _____
Address _____
City State

Progress and Profits Through Standards

(*Continued from page 338*)

in a new standard, whether it's for children's furniture or locomotives, has the right to be represented on the body that draws this new measuring stick. This is in the public interest. It is also the most intelligent way to hammer out a standard which is practical and sensible and meets with the agreement of everyone.

The American Standards Association does not make standards. All it does is to help provide the machinery which is needed to bring a standard into being. We perform a function somewhat like that of a telephone operator; we can bring different groups together but we can't tell them what to say.

The ASA reviews each suggested standard carefully. A check is made to see to it that there are no conflicts with standards already on the books. It is careful to examine how the standard was developed and what the final committee vote revealed. If any votes about a standard are negative, such votes must be accompanied by reasons.

This is voluntary standardization on the consensus principle and is at the heart of the operations of ASA. And with this method of operation we now have about 1300 American Standards which have been issued.

Even when a standard has been approved, and published for all to read, this step is just one move forward in the voluntary process. There is no compulsion for anyone to use ASA standards unless a customer specifies them. Each standard is dynamic in nature and subject to frequent review in the light of changed conditions.

Greater Progress Ahead

What lies ahead in the field of standards? I think we are only beginning to develop them in this country and throughout the world. We have only scratched the surface of what the techniques of standardization can do for our American economy. I foresee an expansion of national standards, many of them growing out of company and industry standards, all of them containing great depth and scope. I believe that we will one day, perhaps sooner than many of us think, have a set of comprehensive, inte-

(*Please turn to page 344*)

men over 45

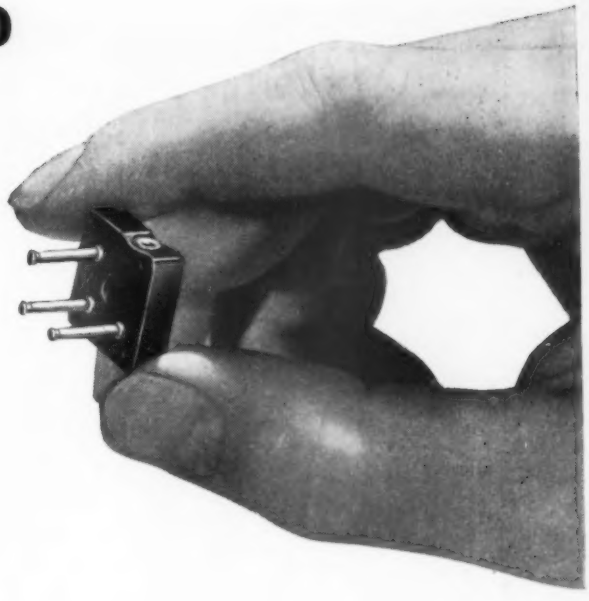
More than six times as many men of your age will die of lung cancer this year as died in 1933, according to official reports. Though our research scientists are making every effort to discover the reason for this increase, they still don't know the answer.

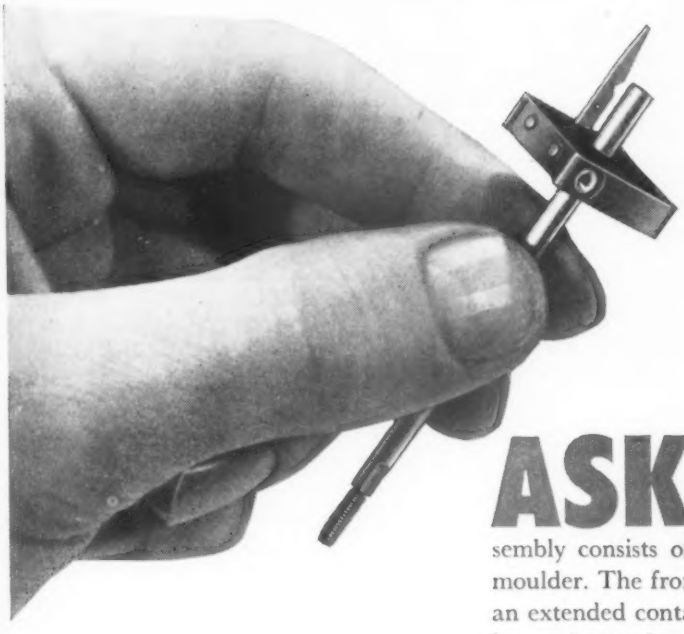
They *do* know, however, that the lives of over half of those who will develop lung cancer *can* be saved...if they get proper treatment while the disease is still in the silent stage, before any symptoms have appeared. That is why we urge you to have a chest X-ray every six months when you have your regular health check-up . . . no matter how well you may *feel*. Only an X-ray can detect the "silent shadow". It is your best insurance against death from lung cancer.

For more information about this or any form of cancer, call our nearest office or simply address your letter to "Cancer" in care of your local Post Office.

American Cancer Society

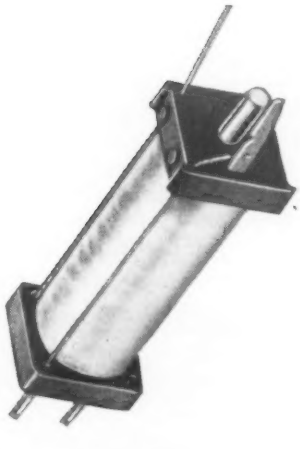
ASK FEDERAL TELEPHONE AND RADIO ABOUT KURZ-KASCH MOULDED PLASTICS!





ASK ABOUT THE PROBLEM! This moulded plastic spool assembly consists of two parts—both intricate and delicate challenges to the moulder. The front part is moulded with a threaded brass insert, an iron core, an extended contact point plus four moulded .093" dia. bosses. Rear assembly has as integral parts a threaded brass insert, three minute pin type terminals, plus four .046" dia. through cored holes and one cored hole for mounting. They're shown here actual size.

ASK ABOUT K-K MOULD-MAKING SERVICE! These parts were needed fast. The numerous inserts moulded in at all angles necessitated complete cavities disassembled on the bench for ejection. Yet our first 4-cavity transfer mould with 2 sets of impressions was ready for production *ahead* of a very tight schedule.



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WHITNEY BLAKE CO.

WB WELL BUILT WIRES SINCE 1899

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Progress and Profits Through Standards

(*Continued from page 340*)

grated national standards permeating the entire national economy.

We will, for instance, have national standards for the shipment of materials throughout all parts of the land—standards for crating, for loading and unloading, for shipping, for storage. We will have national standards for allowances and tolerances for such things as cylindrical parts and limit gages and fits, to provide interchangeable parts, ready assembly and immediate replacement.

We must standardize for our own economic self-preservation. We are now in a period of rising costs and are likely to stay there. That means that our break-even point is higher—we must sell perhaps twice as much today as we sold 15 years ago to make the same profit. We must increase production, increase productivity per man hour of labor, and thus bring costs down. If we do not, we can, in a post-emergency world, sell ourselves straight into bankruptcy.

One of the best tools we can use both to save and survive is the tool of standardization, and, specifically, through the wise and ever-increasing use of American Standards. I do not recommend that we use standards for the sake of using standards. I do recommend that we use common sense when it comes to taking advantage of standards.

This country of ours developed the techniques of standardization. Now let's use to the hilt the means we ourselves originally created to meet our problems and improve our living. Let's stop re-discovering America every day.

STUDY REVIEWS PROPERTIES OF SILICONE RUBBER

The increasing acceptance of silicone rubber as an important engineering material is shown by the content of Silastics Facts No. 10A, a comprehensive review of the properties and performance of silicone rubber, published by the Dow Corning Co., Midland, Michigan. This facts book provides a detailed discussion of the characteristics of these semi-organic elastomers, devoting separate sections to their resistance to high and low temperatures, to weathering, chemicals and hot oils, to compression set and thermal aging, and to their dielectric properties. Typical applications, including gaskets, seals, mechanical parts, hoses and dielectrics are described and illustrated.

Complete Information for the INDUSTRIAL BUYER

WHO? WHAT? WHERE?



Thousands of Industrial Buyers Prefer This Directory

With only the industrial buyer in mind, CONOVER-MAST PURCHASING DIRECTORY carries only listings and product facts on the equipment, parts, supplies, and materials needed by industry. Rigidly excluding all nonindustrial listings and advertisements, the Directory is kept compact—it is easy to keep handy and use, yet it is complete. Besides, it has 35 pages of useful information and tables for the buyer which he will not find in other directories.

Use the CONOVER-MAST PURCHASING DIRECTORY—you'll soon find that the complete cross references make it the easiest and quickest way to locate the suppliers of any item you buy. The more you use it, the better you'll like it.

The Most Convenient Industrial Buyers' Guide for Production, Purchasing, and Engineering Executives.

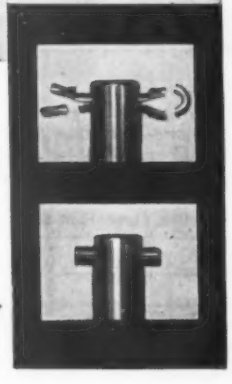
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PURCHASING
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Standard heat-treated cotter pin after only 3 hours on fatigue tester.

Rollpin after 50 hours on fatigue tester. It will outlast any other fastener on the market.



ROLLPIN FASTENERS

now available on Morse Roller Chains

Now, Morse gives you this tested, proved answer to cotter-pin failure in roller chains. It's the Rollpin, most reliable, longest-lived fastener ever incorporated into a power transmission chain.

The Rollpin is a chamfered-end, heat-treated, slotted steel cylinder that is compressed into a pin hole smaller than the Rollpin's own diameter. The Rollpin expands and locks into place until deliberately removed by hammer and punch. It can't fatigue out even under the most severe working conditions.

The Rollpin is another outstanding example of Morse Roller Chain leadership, which has already given you the benefits of shot peening and many other advanced metallurgical refinements.

At no increase in price, Rollpin fasteners are currently available in most of the larger pitches of both standard and heavy-series Morse Roller Chains. If you have been experiencing cotter-pin failure, specify Morse Roller Chain *with Rollpins*. Standard cotter-pin chains are available and will be furnished unless otherwise specified.

M = PT, Morse *means* Power Transmission

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Morse *means* Power Transmission

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MECHANICAL
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NEW HANDBOOK FOR INDUSTRIAL PHOTOGRAPHERS

Two new handbooks—one for the industrial and one for the professional photographer, were recently announced by the Eastman Kodak Co., Rochester 4, N. Y. Four Kodak Data Books are included in the industrial handbook and also in the professional handbook. The majority of the material included in the Industrial handbook is new material. The industrial Data Books are: Microfilming with Kodagraph Micro-File Equipment and materials; Photography Through the Microscope; Making Service Pictures of Industry; and, How to Use Kodagraph Reproduction Materials. The price of the industrial handbook is $4.00, and the price of the industrial data books, available separately, is 50¢ per copy. The price of the Kodak Professional Handbook is also $4.00 per copy, and the data books incorporated in this unit are 50¢ each.

SDPA LOANS GO TO FIRMS WITH LESS THAN 100 EMPLOYEES

Most of the loans made under the Small Defense Plants Administration's program to aid small business have gone to firms with fewer than 100 employees, and have been for relatively small amounts, acoording to John E. Horne, SDPA Administrator. An analysis of the loans made to small firms shows that 84% of the number recommended and 60% of the dollar amount have gone to firms with fewer than 100 employees. About two-thirds of the loans were for amounts under $100,000 and the average size is $117,514. Half of the loans were for less than $65,000. SDPA has not recommended a single loan to a company with more than 365 employees and only two percent of the number and four percent of the value of loans recommended by SDPA have gone to companies employing between 300 or 400 employees.

The largest loan made on SDPA recommendation was for $950,000 to a Cleveland firm for the manufacture of jet aircraft parts, and the smallest—$4,500, to an Enid, Okla. firm for research in connection with rural electrification.

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PURCHASING AGENT OR ASSISTANT AVAILABLE. 5 years experience in light industry specializing in factory equipment and supplies. Sub-contracting of all type machine work. Buying at rate of $150,000 per month. Aggressive and ambitious. College graduate. 30 years old. Prefer East or South. Box 1356, PURCHASING, 205 East 42nd St., New York 17, New York

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will be received by the Superintendent of Storehouses, Panama Canal Company, Balboa, C. Z. until 10:30 A.M. December 5 on Circular #26 part I (Auger, woodboring bits, twist drills, hand tools); December 9 on Circular #26 part II (Expanders, files, punches), December 12 on Circular #26 part III (hand and machine reamers); December 16 on Circular #26 part IV (rules, sledges, tapes, taps, saws, wrenches). Blanks and information relative to these offerings may be obtained from Panama Canal Company, 24 State St., New York 4, N. Y.

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Send Blue Print for quotation.
Ask for Illustrated Folder.

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Industrial X-Ray Machine Westinghouse, K 220 Style 981807, 60 cycle 39 amp 200 V. Stationary type, adjustable tube-head and mount, shock proof, 25 m.p. 220 k v.p Recently overhauled, new oil cooler installed.
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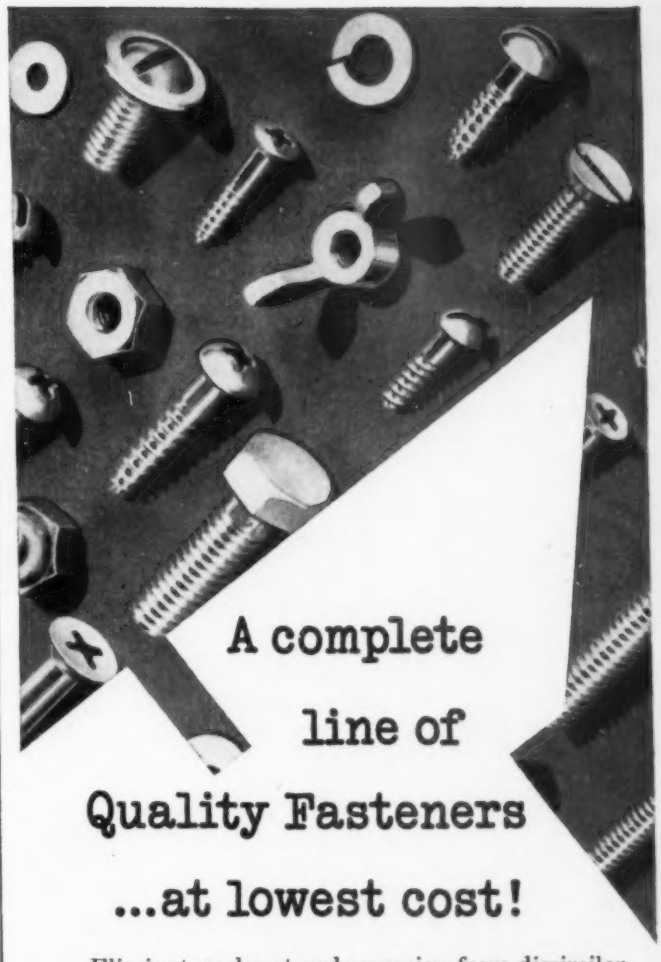
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Eliminate red rust and corrosion from dissimilar metals in your aluminum assemblies. Alcoa Aluminum Fasteners actually cost *less* than any other quality, corrosion-resistant fasteners. Choose from a complete line of nuts, screws, bolts, washers, rivets and cotter pins.

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LETTERS . . .

AUDIENCE REACTION

Our Board of Directors has asked me to express their appreciation for the loan of the film "Industrial Purchasing", which we showed at the October 14th meeting. The film was viewed by approximately 150 members, and all of the comments I heard were favorable.

C. W. Failmezger, Vice Pres.
Milwaukee P. A. Association

Our group certainly enjoyed this film. I wish we could have had more of our top management people at the meeting. As a suggestion, I believe you should suggest to future Associations showing this film, that they invite top management and engineering people to their meeting. This I am sure would show them the importance of a good purchasing department, as well as what cooperation can do for their company.

Maurice Bookout
Eastern Indiana P. A. Assn.

Thanks for permitting use of the picture here. We could not have selected a more appropriate time for the showing than our dinner meeting last night. An audience of approximately 400, made up of a complete cross section of the petroleum industry, executives, engineers, superintendents, chemists, geophysicists, oil well suppliers, manufacturers and distributors, and about 85% of the membership of Tulsa Association watched and listened to this well told story.

H. M. Cosgrove Exec. Secy.
Tulsa P. A. Assn.

Our Association is indebted to you for your kindness in making "Industrial Purchasing" available to us at this early date. And, in my opinion, purchasing men everywhere are indebted to PURCHASING for sponsoring the film.

Clyde H. Porter
Alabama P. A. Assn.

The film was shown to one group of 24 men in our Purchasing Department, consisting of clerks, buyers, purchasing agents and supervisors, and, without exception, it was considered excellent for our profession. A second showing was before a group of 14 women of the Purchasing Department, who also found the film very constructive and enlightening to their respective jobs. The general interest expressed prompts us to request a reshowing at a later date.

C. S. Perkins, Asst. Mgr. of Pur.
Union Oil Company of California
Los Angeles, Cal.

Thank you very much for providing us with the opportunity to project the motion picture "Industrial Purchasing" for all the members of the New Holland Purchasing Division, as well as representative members of the administration of our Sales, Accounting, Production Engineering and Development Engineering Divisions. The film was presented to a total of over 100 people, and was found to be very stimulating in its results.

R. H. Anderson, Dir. of Pur.
New Holland Machine Division
The Sperry Corporation
New Holland, Pa.

The film is deserving of the highest compliments and will be of excellent service in helping all of us in the purchasing profession. You will probably have a good many calls for use of this film in the Cincinnati territory, to be shown to foreman groups.

L. M. Heath, Pur. Dept.
The Liebel-Flarsheim Co.
Cincinnati, Ohio

We showed the film to a number of our sales personnel. It is very obvious that there was a tremendous amount of work and effort put into the development of the film, and I want to congratulate your organization on the very excellent presentation.

D. B. Martin, Amplex Div.
Chrysler Corporation
Detroit, Mich.

● Currently, there are seven prints of "Industrial Purchasing" in circulation, each being shown on an average of two to three times per week, with only Air Express time in between. This means that for every day of the year, the story of the modern purchasing executive and his function in industry is being graphically told to two or more groups of key men in purchasing, sales, advertising, engineering and production, somewhere in the country.—Ed.

CRITIC'S CORNER

I was very much interested in the purchasing movie. It certainly shows the breadth of responsibility and degree of helpfulness which modern purchasing executives exercise. Just one incident in the film disturbed me somewhat. You recall that point where bids were received for the new compressor. It turns out that the low bidder is a company with which the purchasing agent is reluctant to do business, not knowing enough about their stability and reliability to put his confidence in them as a supplier. It seems to me that good purchasing practice calls for investigation of possible bidders *before* they are asked to quote, and that the story would be better if this were done in the picture. This is just a suggestion, looking toward possible improvement of a very good job.

R. P. Snow, Dir. of Pur. & Stores
Cleveland Elec. Illuminating Co.
Cleveland, Ohio

● "John Monroe" is no superman. Like all purchasing agents, he can benefit through experience and education. Mr. Snow's sound and thoughtful comment is herewith passed along in the interest of better buying.—Ed.

DRYING PROCESS

I was interested in reading an article in your October issue, regarding instantaneous drying. I am interested in finding out if this process would be applicable in the drying of paint in our manufacturing of school bus and truck sash. Can you give me the name and address of the manufacturer or local representative?

M. A. Wilson, Pur. Dept.
Excel Corporation
Elkhart, Indiana

● The sulfur dichloride vapor drying process was developed at Armour Research Foundation of Illinois Institute of Technology, Chicago. Patents were assigned to the Meyercord Co., 5325 W. Lake St., Chicago, Ill. Full information regarding commercial applications can be obtained from these sources. —Ed.

DECENTRALIZED PURCHASING

Two or three years ago, you published an article on Centralized vs. Decentralized Purchasing. I would very much appreciate receiving a copy of this article or of the issue containing it.

P. E. Walker, Pur. Agt.
United Gas Corporation
Houston, Texas

● For further reference on the subject of decentralized or divisional purchasing, see the following:

Why Centralize Purchasing? (February 1949 issue)

Coordination of Decentralized Purchasing (March 1949 issue)

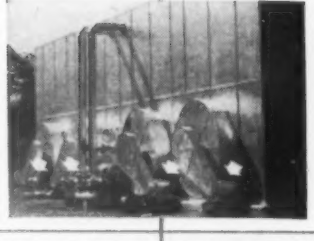
Purchasing Management at the Operating Level (March 1950 issue)

How Much Purchasing Responsibility Should Be Delegated to Local Units? (March 1951 issue)

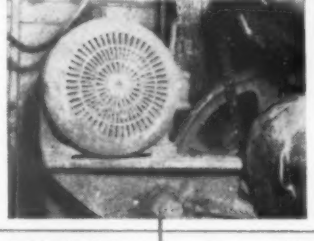
The Purchasing Agent's Job (March 1951 issue)



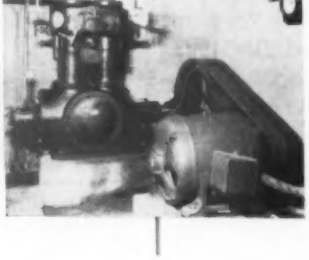
SELECT THE Century



Here are Century splash proof motor's driving fans out in the open, without any protection. You can use the same motors where the plant must be washed down with a hose. Or where there are splashing liquids or falling objects of any kind.



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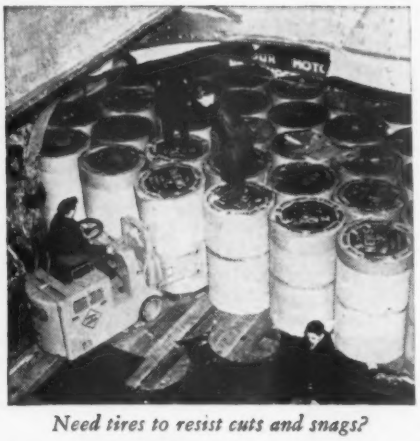
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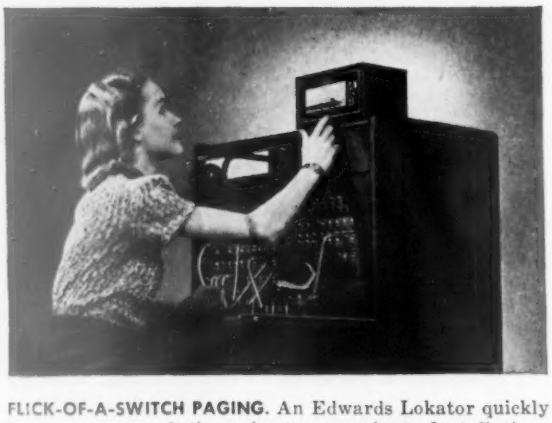
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YOU KNOW OSBORN Brushes are good. To simplify buying and to assure getting unsurpassed quality, all you need to do is *specify* "OSBORN". No need for shopping around. No chance for questionable quality. You can buy OSBORN paint, maintenance and power brushes with confidence because their workmanship and materials are backed by 60 years of OSBORN service to Industry. Order them automatically from your INDUSTRIAL DISTRIBUTOR on the same order as other mill supplies. *The Osborn Manufacturing Company, Dept. 902, 5401 Hamilton Avenue, Cleveland 14, Ohio.*

Osborn Brushes

OSBORN POWER, MAINTENANCE AND PAINT BRUSHES AND FOUNDRY MOLDING MACHINES



IT'S SIMPLE. You can make one order cover OSBORN brushes and other leading-brand mill supplies when you buy from your Industrial Distributor. This standard practice streamlines your purchasing, cuts your supplies inventory, assures you good service on top quality products.



HANDY STOCK. Your Industrial Distributor carries a large stock of OSBORN brushes to supply you with the right type of brush promptly. Saves your time. The OSBORN Master* Sweep Floor Brush shown is a nationally recognized product.



FOR *YOUR* NEEDS. There is a complete line of Osborn power brushes to meet your cleaning and finishing problems. Built for Industry by the Company that knows Industry's problems. They do their jobs thoroughly and fast. *Trade-mark.

Here's a Profit Tip from a Turret Drill!

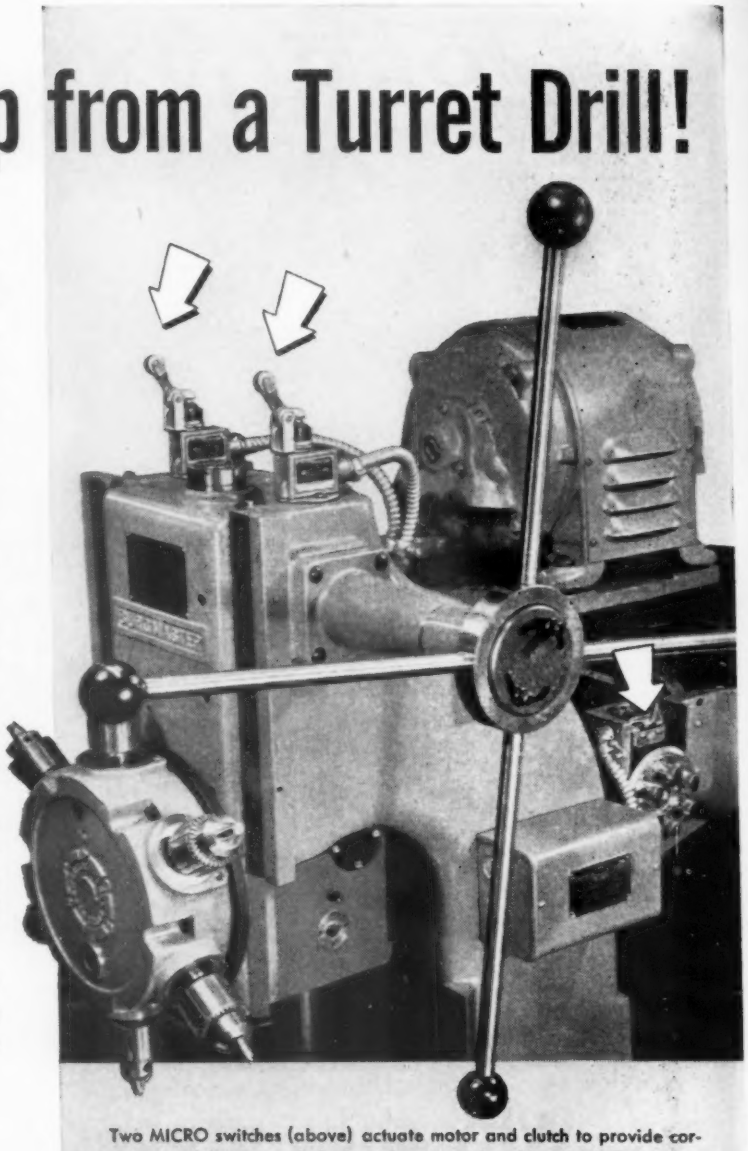
From the experience of Burg Tool Mfg. Co., makers of the Burgmaster Six Spindle Turret Drill, you may easily derive an idea that can improve your own product and brighten your profit picture.

Burg engineers, incorporating four MICRO precision switches into the Burgmaster's design, achieved a universal type machine which not only boosted production and accuracy, but largely eliminated wasteful handling, which can take up as much as 50% of machining time!

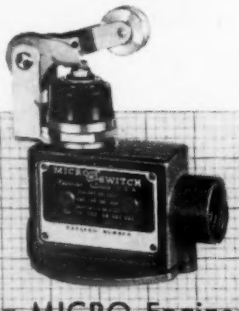
In the Burgmaster, two dustproof MICRO units regulate a motor-and-clutch mechanism into the neutral position needed to provide the correct speed for fast power indexing. Another pair of MICRO switches, regulating the electric clutch, helps preselect the choice of twelve spindle speeds. Result: More efficient, faster drilling operation at lower cost per piece!

According to Mr. J. L. Burg, Vice President, "We chose MICRO switches because of their sturdy construction, adequate overtravel and proved dependability through a countless number of contacts."

If *your* design problem involves precision-switch use, MICRO field engineers will gladly cooperate with you and your design staff to meet your switch requirements.



Two MICRO switches (above) actuate motor and clutch to provide correct speed for power indexing when turret head is raised. Two others (lower right) regulate spindle speed as it moves into drilling position.



Let a MICRO Engineer
show you how you can
"Use MICRO Precision
Switches as a principle of
good design"



Battery of Burgmaster Turret Drills in operation. Machine at left in drilling position. Next unit shows turret head raised to indexing position.

MICRO
MAKERS OF PRECISION SWITCHES
FREEPORT, ILLINOIS

A DIVISION OF
MINNEAPOLIS-HONEYWELL REGULATOR COMPANY


SEVERAL OPERATIONS SAVED
by rolling this shape
Maybe the section you want to sub-contract doesn't look like this one but . . . the same economies will apply. The section illustrated demonstrates our lower cost story. Punching, notching, roll forming and cutting to length of this specific piece are done in one continuous operation. As a designer or production man, you know how the saving of operations lowers the unit cost. Continuous rolling saves man hours, eliminates extra handling of parts, and improves uniformity and accuracy.
How about your part?
We have the equipment in our modern plant to turn out your parts by the thousands or millions on a good delivery schedule.
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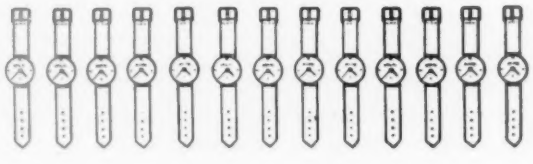


SIDNEY LANGER

Traffic Manager

BENRUS WATCH COMPANY

Says...



We've enjoyed 10 years of Daily Service by Railway Express *without a single loss!*

"That's going some! Because, each year Benrus ships thousands of packages . . . valued at several million dollars. Express provides full valuation coverage and "armed guard" protection.

"An Express Man works right in our plant 5 days a week . . . takes care of all details. *This special Railway Express service cannot be equalled!* Express shipments always reach our customers on time . . . and in perfect condition."

When you need "protective handling" . . . or day-in, day-out, fast, dependable shipping service—specify Railway Express.

Remember, you *save* when you ship by Express. You can use one BIG carton . . . and *save* the cost of extra containers, extra packing material, assembling, labeling—and separate charges on individual packages.

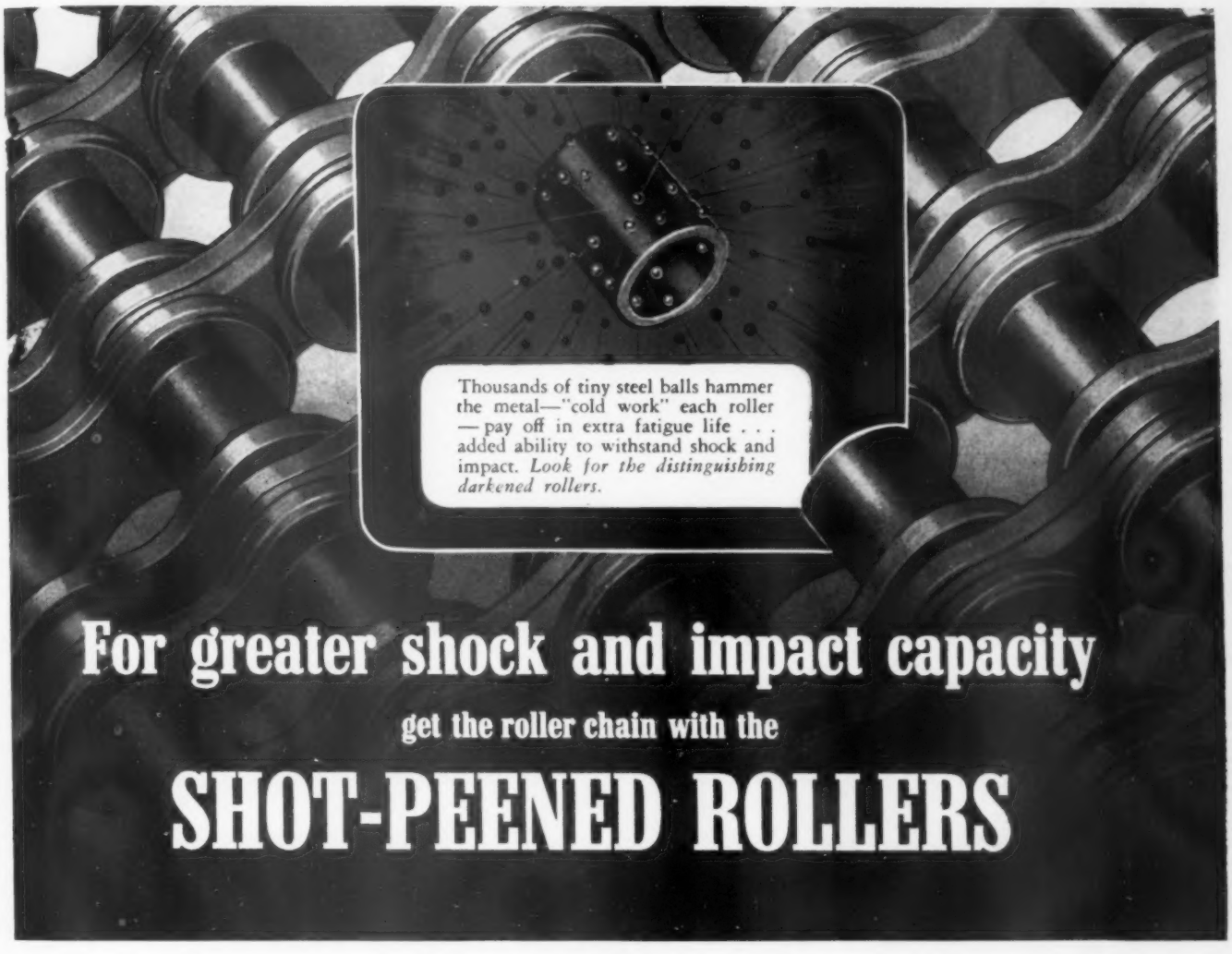
***One charge* gives you all these advantages:**

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- ★ *pickup and delivery in all cities and principal towns*
- ★ *you can ship collect, prepaid or paid-in-part*
- ★ *liberal valuation allowance*
- ★ *receipt to shipper, one taken from receiver*
- ★ *you can ship by either rail or air*

It'll pay you to



..... ALWAYS ASK THE EXPRESS MAN.....



For greater shock and impact capacity

get the roller chain with the

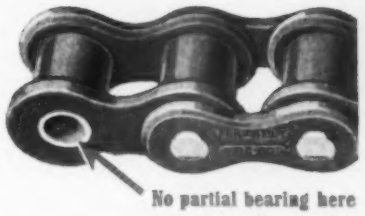
SHOT-PEENED ROLLERS

. . . one of the extra-wear features you get with every LINK-BELT Roller Chain

JUST as shot-peened rollers give you extra fatigue life—so do Link-Belt's exclusive lock-type bushings multiply roller chain's capacity to withstand shock loading. And there are many other engineering extras that make Link-Belt Precision Steel Roller Chain your best buy for drive and conveying service.

You can choose from the complete range of Link-Belt Precision Steel Roller Chain. Ask your nearest Link-Belt office for full particulars on single or multiple widths, in ⅜″ through 3″ single pitch, or double pitch, 1″ through 3″.

Lock-type Bushings increase ability to withstand severe operating conditions



No partial bearing here — bushing fits securely

A special manufacturing process securely locks the inside sidebars on the bushing, preventing lateral movement of the sidebars and eliminating a common cause of stiff chains. This Link-Belt development is applied on roller chains through 1″ pitch and double pitch roller chains through 2″ pitch. 12,696

LINK-BELT

PRECISION STEEL ROLLER CHAIN

LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa), Sydney (Australia). Offices, factory branch stores and distributors in principal cities.

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In addition to making vast quantities of stampings in the light and medium range, we produce some of the finest machined, tapped and hardened and ground product in the midwest.

With all elements of manufacturing under one control we can assure you of complete satisfaction to any of your requirements.

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CLUTCH HEAD SCREWS
STAMPINGS

United Screw and Bolt Corporation

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How to make your package a "sweeping" success!

Toys, like hundreds of other products, sell faster in colorfully-printed merchandising packages like these that catch the eye. In this instance, the master shipping box protects the goods in transit to the retailer, while providing prominent brand name identification. And the toys are delivered in clean, factory-fresh condition to the customer without repacking . . . *and costs go down.*

Be sure *your* packaging does everything possible to build good will and to increase sales and decrease costs. Call in an H & D Package Engineer today. For free fact-packed booklet, "How To Merchandise With Corrugated Boxes," write Hinde & Dauch, 5203 Decatur St., Sandusky, Ohio.

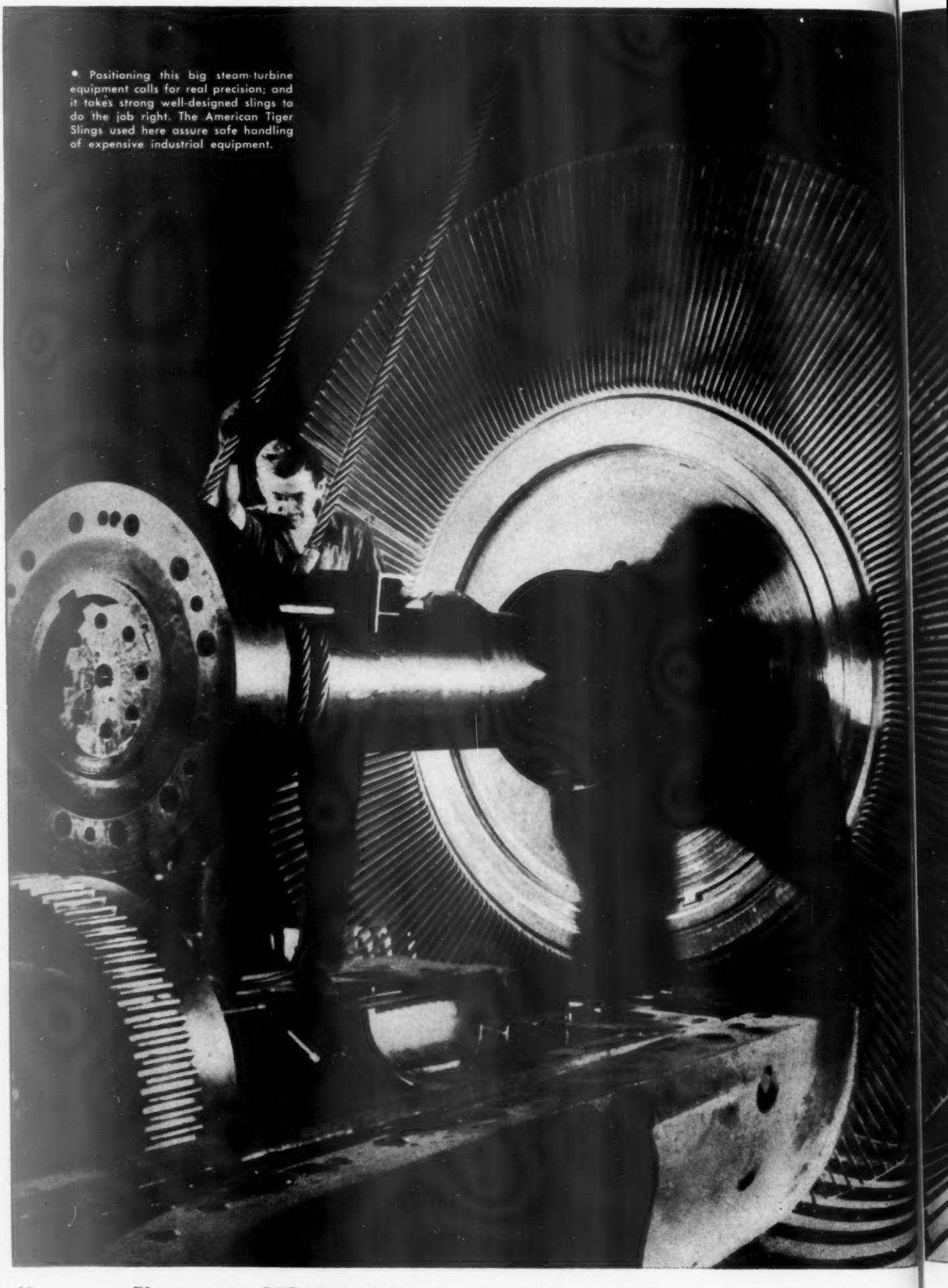


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Akron, Baltimore, Battle Creek, Mich., Bloomington, Ill., Buffalo, Chicago, Cincinnati, Cleveland, Columbus, Denver, Detroit, Fairfield, Conn., Findlay, Ohio, Gloucester City, N. J., Greensboro, N. C. Hoboken, Indianapolis, Jamestown, N. Y., Kansas City, Lenoir, N. C., Minneapolis, Omaha, Plymouth, Ind., Reading, Pa., Richmond, Va., Roanoke, Va., Rochester, Sandusky, Ohio, Shrewsbury, Mass., St. Louis, Toledo, Watertown, Mass.


• Positioning this big steam-turbine equipment calls for real precision; and it takes strong well-designed slings to do the job right. The American Tiger Slings used here assure safe handling of expensive industrial equipment.



Would you use homemade slings on this shaft?

• Homemade slings just wouldn't do. It took *precision-made* slings to position this huge steam-turbine shaft. Carefully designed and tested, American Tiger Wire Rope Slings assured the extra strength and toughness needed to make this heavy lift safely.

For every lifting job, you need a sling that is suited to the type of equipment being moved. That's why American Steel & Wire makes many types of slings for *430* different industrial applications; these standard slings cover almost every lifting task you will ever encounter. For some very heavy lifts, though, you need slings that are specially designed for the job. If you have such a problem, our engineers will gladly work with you to design a special sling.

American Tiger Slings—whether of standard or special design—enable you to move loads easily and at low cost. They are made of the best available steel for the job. The strongest and toughest slings are made of Monitor Improved Plow Steel Wire Rope that provides great resistance to wear. All slings have heat-treated carbon-steel fittings that are rugged enough for the hardest service.

Send in the coupon for our free booklet on American Tiger Wire Rope Slings.

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Cleveland 13, Ohio

Please send me your free book on American Tiger Wire Rope Slings.

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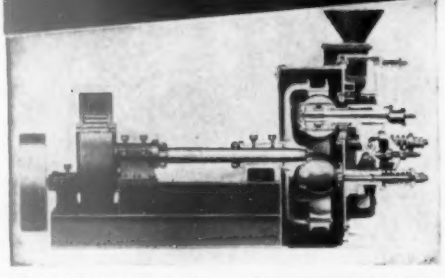
City .....State .....

AMERICAN STEEL & WIRE DIVISION
UNITED STATES STEEL COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA-GENEVA STEEL DIVISION, SAN FRANCISCO
TENNESSEE COAL & IRON DIVISION, FAIRFIELD, ALA., SOUTHERN DISTRIBUTORS
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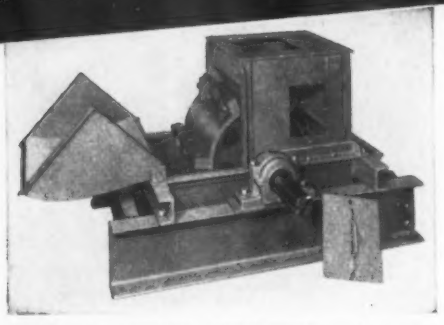
U·S·S AMERICAN TIGER WIRE ROPE SLINGS

UNITED STATES STEEL

Step-up Production Lower Preparation Costs with STURTEVANT EQUIPMENT



RING ROLL MILL — for medium and fine reduction of hard or soft materials (10 to 200 mesh). Open-door accessibility for easy cleaning. Available in many sizes and capacities.



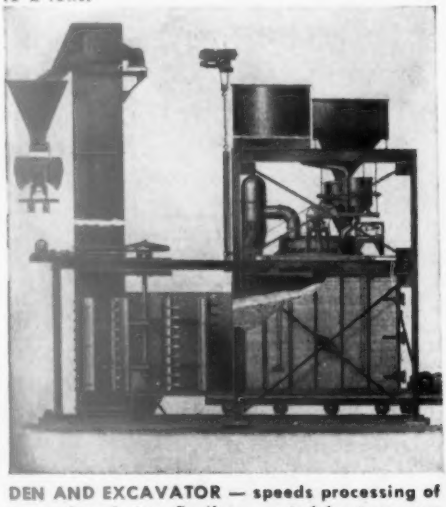
TAILINGS ROTARY PULVERIZER — increases output of fertilizer tailings . . . will not clog . . . leaves no daily accumulation of unground pellets. Capacities up to 25 tons per hour.



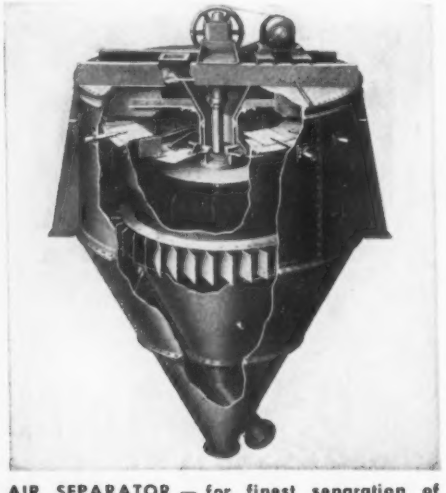
DRY BATCH MIXERS — 4-way mixing action mixes two or more ingredients into an inseparable, homogeneous mass. Open door accessibility makes cleaning easy. Capacities ¼ ton to 2 tons.



MOTO-VIBRO SCREENS — screen everything screenable. Open and closed models with or without feeders. Many types and sizes . . . screens from ½" to 60 mesh.



DEN AND EXCAVATOR — speeds processing of superphosphates. Easily operated by two men . . . produces 16 to 40 tons per batch and up to 480 tons per day of superior fertilizer free from lumps.



AIR SEPARATOR — for finest separation of materials. Capacities from ¼ ton to 50 tons per hour in fineness of 40 to 325 mesh and finer. Increases production of fines, cuts power consumption costs.

Sturtevant Processing Equipment . . . Grinders, mixers, separators, screens, etc. . . . can help you *reduce* today's high manufacturing costs by increasing both machine and operator output, lowering production costs, assuring high quality products.

Records in all types of industries — chemical, plastics, ceramics, cement, food, construction — prove that this equipment works dependably day in, day out with little, if any, maintenance.

Used individually or linked together in proper sequence, they do the job faster and easier than other types . . . handle a larger variety of work.

It will pay you to investigate Sturtevant Processing Equipment for your plant. There is a size and type of machine that will meet your requirements. Write for information.

STURTEVANT MILL COMPANY

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Designers and Manufacturers of:

CRUSHERS • GRINDERS • SEPARATORS
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A Real Bargain...

AB-I CIRCUIT BREAKERS

Simple arithmetic proves our point. After a fault, anyone can safely "Reset" a Westinghouse AB-I Circuit Breaker in seconds. But, replacement of elements in other types of circuit-protective devices really eats into valuable production time.

Count up replacement elements over a year... then multiply by the length of time each replacement took. This is the output you lose, the time that men and machines have stood idle.

In sharp contrast, with AB-I Circuit Breakers a workman simply turns the breaker handle to "Reset" and back to "On" to restore service. He isn't exposed to live parts, the trip-free breaker merely trips again if the fault continues.

Other exclusive AB-I features, such as "De-ion®" Arc Quenching, quick-make, quick-break tripping and exact, tamperproof calibration further prove Westinghouse AB-I Circuit Breakers are a real bargain in protection and savings.

See for yourself. Call your Westinghouse Distributor or write for B-5456, Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

J-30090



YOU CAN BE SURE...IF IT'S

Westinghouse

AB-I *Circuit Breakers*

THE COMPLETE LINE

"Of course, circuit breakers save money."

FOR MORE CUTS PER DAY
MORE CUTS PER BLADE

Specify Starrett

HACKSAWS



A complete line for all hand or power metal cutting

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For cutting metal, wood, plastics. In coils or cut to length and welded

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For all soft or fibrous materials. Straight, scallop or wavy-edge types

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Big new catalog tells how to choose the right hacksaw, band saw or band knife for any cutting job. Write for it today. Address Dept. P



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MECHANICS' HAND MEASURING TOOLS AND PRECISION INSTRUMENTS
DIAL INDICATORS • STEEL TAPES • PRECISION GROUND FLAT STOCK
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Buy THROUGH YOUR INDUSTRIAL DISTRIBUTOR

Prompt delivery
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Clean-Cutting,
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The complete line of quality cutters made by Brown & Sharpe is designed to help you get top machine productivity at all times. Their longer wearing qualities mean a longer period of efficient cutting between sharpenings.
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NORTON GRINDING WHEELS

Tool Wheels —
In several varieties of Alundum abrasive for grinding high speed steels and the cast alloys; in green and gray Crystolon abrasive for carbide tools.

Diamond Wheels —
Three types — the Norton Vitrified Bonded, Metal Bonded and the Resinoid Bonded — to meet all requirements for grinding carbide tools, glass, stone, and ceramics.

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Straight, cup and cone wheels in vitrified and resinoid bonds; the reinforced hub wheel that both cuts and smooths.

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Resinoid and rubber bonded for high speed operation — vitrified bonded for speeds up to 6000 s.f.p.m.

O. D. Wheels —
In abrasives and bonds for all types of O. D. grinding — both cylindrical and centerless.

Surfacing Wheels and Segments —
Straight, cup and cylinder wheels and segments for all types and makes of surface grinders.

Disc Wheels —
Sizes and types of mountings for all kinds of disc grinders.

Cut-Off Wheels —
For the quick and economical cutting of metallic and non-metallic rods, bars, tubes and other shapes.

Mounted Points —
Spindle mounted wheels and points in a wide variety of sizes and shapes for die shops and tool rooms.

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For the right grinding wheel — *the most economical grinding wheel* — for each of your grinding jobs call in your Norton distributor. You'll find him listed under "Grinding Wheels" in your classified telephone directory. He will work directly with you, calling in a Norton Abrasive Engineer if necessary.

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Warehouses in five cities — distributors in all principal cities.
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You can't stop a tiger with a water pistol 



You can't stop corrosion with ordinary paints . . .

it takes BITUMASTIC COATINGS!

CORROSION can't be stopped by ordinary paints or conventional protective coatings. They can't protect surfaces against the ravages of rust for any appreciable length of time.

But Bitumastic Coatings can!

FIRST—Unlike maintenance paints, Bitumastic® Protective Coatings are specially formulated from a base* of coal-tar pitch that is, for all practical purposes, impervious to water. When you keep moisture away from an exposed surface, you *stop* corrosion.

SECOND—Bitumastic Coatings provide an extra-tough, extra-thick barrier against corrosive elements—a barrier that is impenetrable. These coatings provide up to 8 times the film thickness of conventional paint coatings.

THIRD—Bitumastic Coatings stop corrosion caused by moisture—acid fumes—alkaline fumes—corrosive soil—salt air—heat.

There are 6 Koppers Coatings—formulated to control corrosion of metal and deterioration of concrete. Use the coupon for full information.

****Hi-Heat Gray contains a metallic base.***

SEND FOR SET OF FREE BOOKLETS!

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Please send me, without charge or obligation, your booklets on corrosion prevention.

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DISTRICT OFFICES: BOSTON, CHICAGO, LOS ANGELES, NEW YORK, PITTSBURGH, AND WOODWARD, ALA.



"Our railroad bridge is an

EYE OPENER

for anybody with an assembly problem"

"Whether you're assembling toasters or bridges," Ken went on, *"it pays to set your sights on fasteners."*

"Fasteners?" asked Jack.

"Right!" affirmed Ken. *"We've saved plenty by taking the RB&W man's advice to switch from rivets to high strength RB&W bolts in assembling high stressed structural joints.*

"These bolts stay tight and that saves us maintenance. They assemble faster, and that saves us labor and construction time."

There's a cost-cutting lesson for you in this story, whatever your industry.* So look to your fasteners for an often overlooked opportunity to reduce costs, and strengthen your competitive position. New inventions, like RB&W's SPIN-LOCK Screw, may prove more efficient than the fasteners you're now using.** Or you may save by the stepped-up production you get from using the finest fasteners... RB&W bolts, nuts, rivets and screws of uniform accuracy, dependability and physical properties.

Let RB&W help you make the most efficient use of fasteners on your assembly line. Address RB&W at Port Chester.

RB&W—The Complete Quality Line. Plants at: Port Chester, N.Y., Coraopolis, Pa., Rock Falls, Ill., Los Angeles, Calif. Additional sales offices: Philadelphia, Pittsburgh, Detroit, Chicago, Dallas, San Francisco. Sales agents: Portland, Seattle. Distributors from coast to coast.

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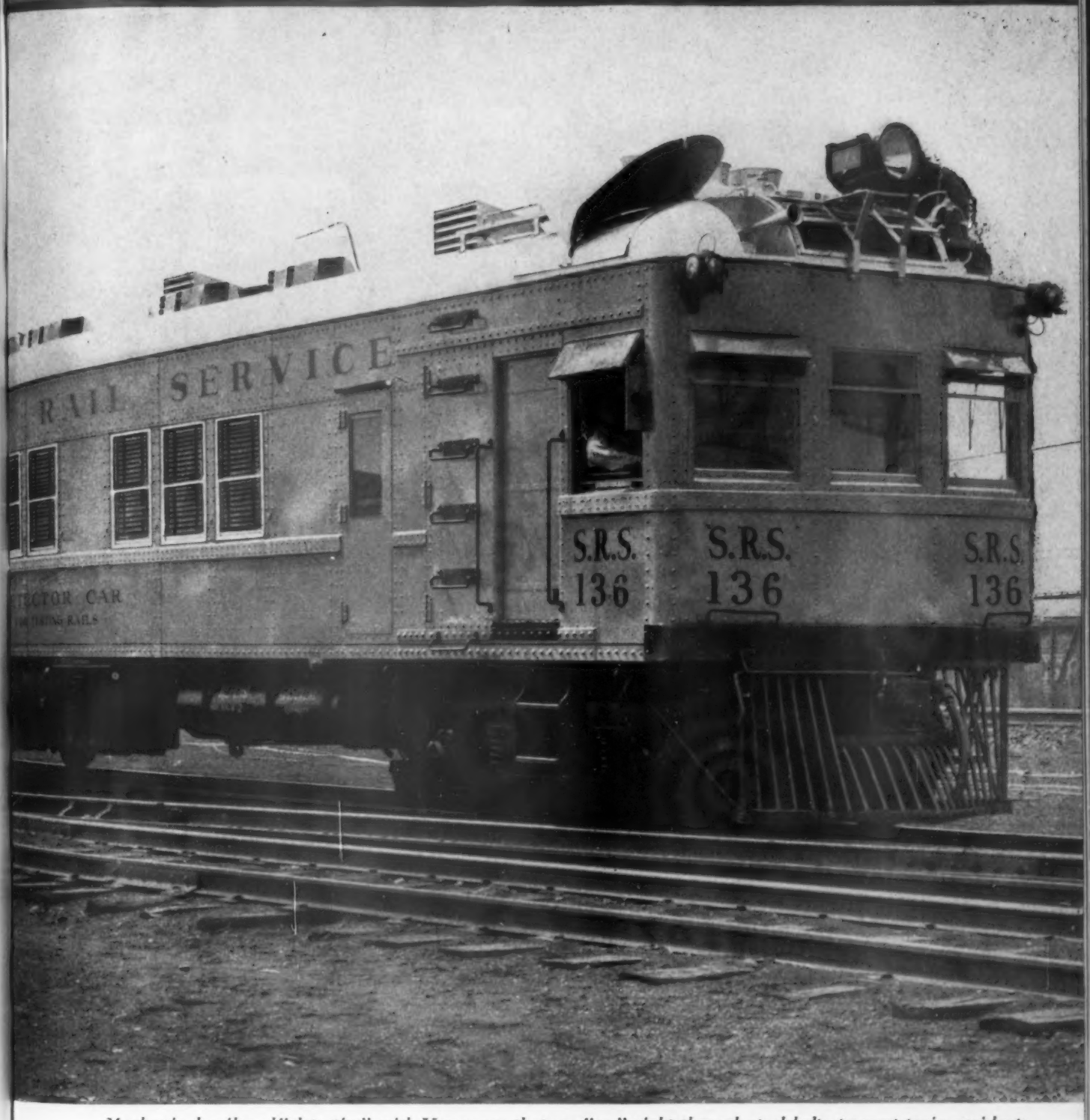
R B & W

107 YEARS MAKING STRONG THE THINGS THAT MAKE AMERICA STRONG

*If you're interested in construction, write RB&W at Port Chester for the free article, "No More Riveting."

**New SPIN-LOCK Catalog is in the Product Design File. Write for extra copies.

B.F.Goodrich GROMMET BELTS AT WORK

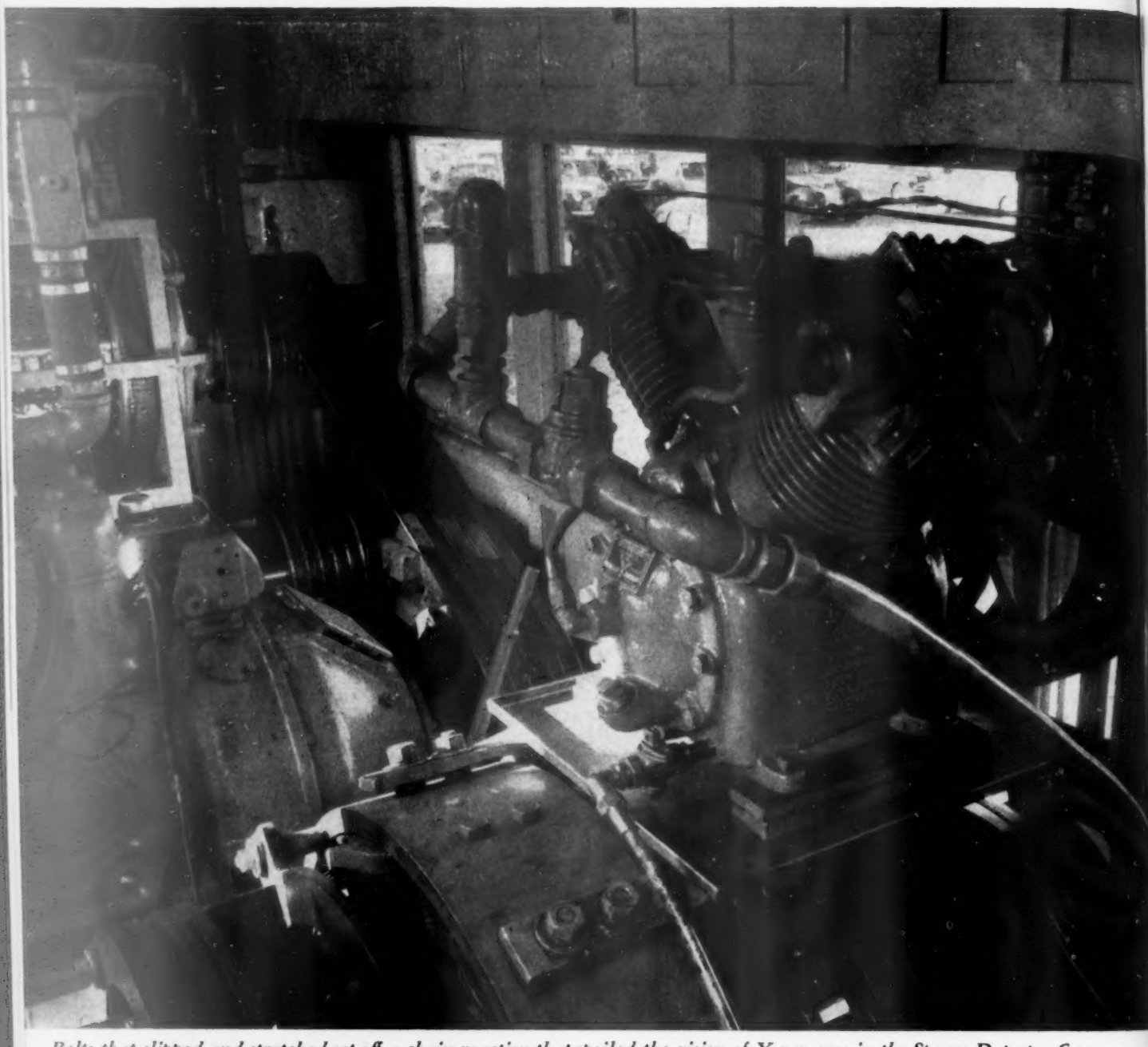


Mechanical railroad "detective" with X-ray eyes that can "see" right through steel helps prevent train accidents.

"Track walker" sees through steel

That car inspects more railroad track in a day than a man on foot could cover in a week. Delicate electrical equipment detects hidden flaws a man could never see. Two big generators supply the electricity, but the belts needed to run them caused trouble. Stretch or slip of the belts affected the generators, and that distorted the testing equipment. Ordinary V belts stretched badly; replacement was frequent and costly. On the next page you'll see how an entirely different kind of belt solved the problem.

Track walker (continued)



Belts that slipped and stretched set off a chain reaction that spoiled the vision of X-ray eyes in the Sperry Detector Car.



THE problem described on the preceding page was solved when B. F. Goodrich grommet V belts were installed. Grommet belts are more flexible, don't slip or stretch as much as ordinary belts. Now BFG grommet belts are giving 3 times the service of other belts, saving belt costs, and cutting repair and maintenance time by 60 per cent. Here's the reason grommet belts last longer, serve better, save money.

20 to 50% Longer Life

Patented grommet V belts by B. F. Goodrich represent the only basic improvement since invention of the V belt. Belts last 20 to 50% longer, depending on service. (The more severe

the service the greater the increase over ordinary belts.)

What is a grommet?

A grommet is like a giant cable except that it's endless—a cord loop built up by winding heavy cord on itself. There is no overlapping cord *section* as in all ordinary belts. Most belt failures occur in these sections where cords overlap!

All Cords Put to Work

Each grommet and every part of a grommet carries its share of the load. In ordinary belts under high tension the center cords "dish" because tension is greater near the driving faces. Dished cords are doing less work, not pulling their share. Grommet V belts have no center cords, there is no dishing—therefore much more strength in proportion to cord volume.

Better Grip, Less Slip

Grommet V belts have more rubber in relation to belt size. Without any stiff overlap, they're more flexible, grip pulleys better. Size for size, grommet belts give ⅓ more gripping power, pull heavier loads with a higher safety factor.

They Cost No More

You save belt costs because belts last longer, reduce production costs because machines keep running with fewer interruptions, reduce maintenance costs because they need less attention, yet cost not one cent more than others. Grommet belts are made in C, D and E sections. They are patented by B. F. Goodrich. No other V belt is a grommet belt (U. S. Patent Number 2,233,294).

Highway robber

When this drive stops, rock needed for highway construction doesn't get crushed, new roads don't get built on schedule. In addition to running 9 hours a day, 6 days a week, the belts that drive the rock crusher are exposed to dampness, oil and sharp grit. Previous belts suffered from shock loads, wore out fast. The company, Valley Limestone & Gravel, Inc., Farmington, Iowa, tried other V belts, even flat belts, but mechanical trouble and production hold-ups continued. Then a B. F. Goodrich man suggested grommet V belts to stand the jerks and hard pulls. The B. F. Goodrich grommet V belts shown here have been in service 2 years, production has been increased 25%, labor and maintenance time has been reduced.



Jolting, crunching action of rock crusher used to cause production "hold-ups".

Track walker (continued)



Belts that slipped and stretched set off a chain reaction that spoiled the vision of X-ray eyes in the Sperry Detector Car.



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A grommet is like a giant cable except that it's endless—a cord loop built up by winding heavy cord on itself. There is no overlapping cord *section* as in all ordinary belts. Most belt failures occur in these sections where cords overlap!

All Cords Put to Work

Each grommet and every part of a grommet carries its share of the load. In ordinary belts under high tension the center cords "dish" because tension is greater near the driving faces. Dished cords are doing less work, not pulling their share. Grommet V belts have no center cords, there is no dishing—therefore much more strength in proportion to cord volume.

Better Grip, Less Slip

Grommet V belts have more rubber in relation to belt size. Without any stiff overlap, they're more flexible, grip pulleys better. Size for size, grommet belts give ⅓ more gripping power, pull heavier loads with a higher safety factor.

They Cost No More

You save belt costs because belts last longer, reduce production costs because machines keep running with fewer interruptions, reduce maintenance costs because they need less attention, yet cost not one cent more than others. Grommet belts are made in C, D and E sections. They are patented by B. F. Goodrich. No other V belt is a grommet belt (U. S. Patent Number 2,233,294).

Highway robber

When this drive stops, rock needed for highway construction doesn't get crushed, new roads don't get built on schedule. In addition to running 9 hours a day, 6 days a week, the belts that drive the rock crusher are exposed to dampness, oil and sharp grit. Previous belts suffered from shock loads, wore out fast. The company, Valley Limestone & Gravel, Inc., Farmington, Iowa, tried other V belts, even flat belts, but mechanical trouble and production hold-ups continued. Then a B. F. Goodrich man suggested grommet V belts to stand the jerks and hard pulls. The B. F. Goodrich grommet V belts shown here have been in service 2 years, production has been increased 25%, labor and maintenance time has been reduced.



Jolting, crunching action of rock crusher used to cause production "hold-ups".

B.F.Goodrich GROMMET BELTS AT WORK



Softened up for a beating

It's wash day round-the-clock, 6 days a week in this plant. Here rags are soaked and shredded before being beaten to a pulp and used for making paper. Belts are used to drive the washer, but it's rough service. Starting it causes shock loads, and the long hours would be a strain on any driving mechanism. Something exceptional was needed, so B. F. Goodrich grommet V belts were installed. They have done a better job of running the machine than belts previously used, and stood the shock and strain for 8½ years.

Every day is wash day at Millers Falls Paper Company, Millers Falls, Mass.

These typical examples (see preceding pages) tell you why B. F. Goodrich grommet belts are superior to ordinary V belts — prove they last 20 to 50% longer—yet cost no more.

Grommet V Belts BY
B.F.Goodrich
FIRST IN RUBBER

The B. F. Goodrich Company, Industrial Products Division, Akron, Ohio

STOP costly blink-blink-blink

WITH G-E WATCH DOG NO-BLINK FLUORESCENT STARTERS



The blinking of a failing fluorescent lamp not only annoys workers and lowers efficiency, but each blink costs actual money. It shortens the life of starters and ballasts—they burn out before they should. Here's how General Electric's Watch Dog* no-blink starters eliminate these needless costs.

- Watch Dog starters *stop blinking* by automatically turning off failing lamps that cause blinking.

- A Watch Dog starter *keeps the lamp off*—no recurring blinking every time fixtures are turned on.

- Because they eliminate blinking, Watch Dog starters *outlast* ordinary starters by as much as 10 to 1—ballasts also last longer.



Remember, too, emergency relamping is eliminated when you standardize on Watch Dog starters. And Watch Dog starters are essential to any schedule of group lamp replacement—the modern, economical method of lamp maintenance.

Specify Watch Dog no-blink starters for new fixtures—insist on them for replacement stocks. You'll make important savings in maintenance costs and won't be bothered by blinking lamps. For all the facts on the Watch Dog starter line, write for a copy of folder Q48-1270. Construction Materials Division, General Electric Company, Bridgeport 2, Conn.

Registered Trade-mark: General Electric Company

For all replacement needs—use the famous Watch Dog no-blink starter with the red reset button.

And here is the tag to look for when you buy fluorescent fixtures. It is an indication that the fixture has been equipped with G-E Watch Dog no-blink starters.





You can put your confidence in—

GENERAL ELECTRIC

this is a bull nut

(as any refinery man knows)



and these are **APEX** Bull Nut Drivers

(that save time and money in many refineries)



Setting and removing bull nuts on preheaters of cracking unit furnaces used to be quite a task. It was, in fact, one of the most persistent and troublesome problems of refinery maintenance.

Not any more. This new series of Apex drivers solved that problem. They can be used with almost any make of power tool, and are available in a full range of lengths and hex sizes to accommodate all standard bull nuts.

They are considerably lighter than the tools formerly used for this type of work, yet they will provide longer service life. Can't tell yet how much longer—the first ones ever built are still in service!

Unless you operate an oil refinery, you probably aren't interested in Apex bull nut drivers. But if you have anything at all to do with nutsetting operations, you'll be very much interested in the many other types of Apex drivers.

Whatever your nutsetting problem, chances are you'll find the answer to it among the thousands of stock types and sizes of Apex sockets, extensions, adapters and universal wrenches. And, if your problem should be very special, just send us a sketch or blueprint and we'll most likely come up with the special solution—just as we did for the oil refineries.

CATALOG 29 is packed with specifications, illustrations and helpful information on the complete Apex line—write, on your company letterhead please, for your copy.

APEX TOOLS

sockets, extensions, adapters

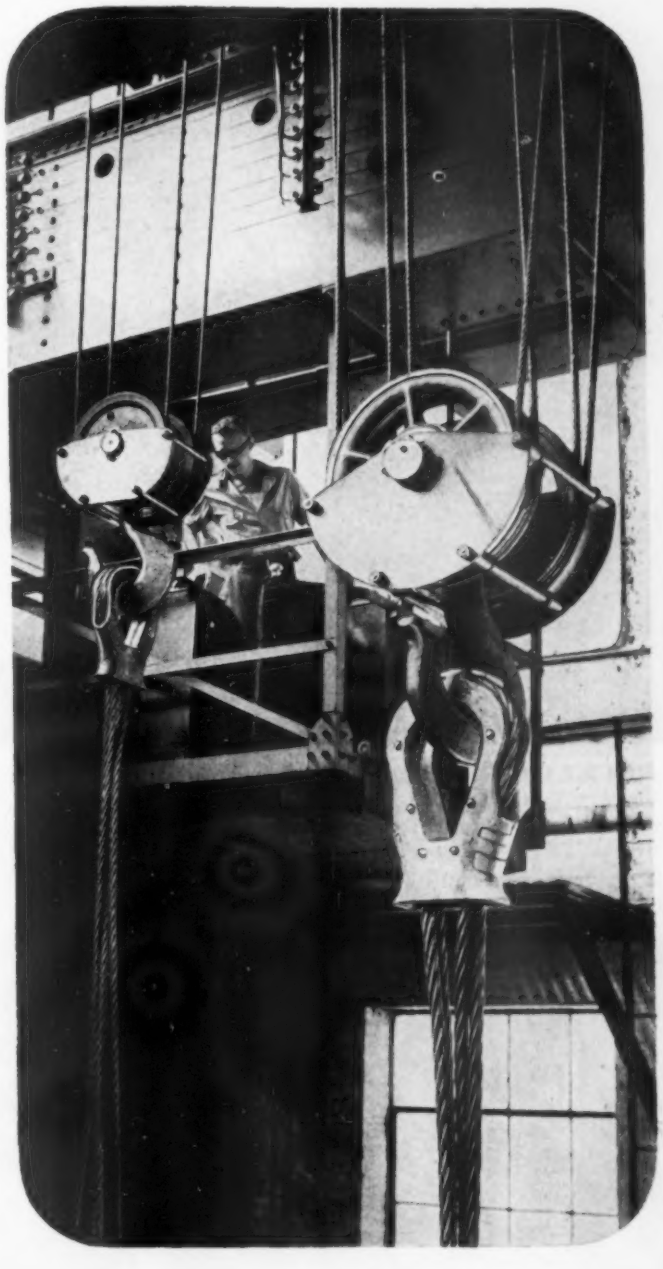
THE APEX MACHINE & TOOL COMPANY

1034 S. Patterson Blvd., Dayton 2, Ohio

POWER BITS, INSERT BITS AND BIT HOLDERS, FOR PHILLIPS, FREARSON (Reed & Prince), SLOTTED, CLUTCH HEAD and SOCKET HEAD SCREWS • HAND DRIVERS FOR PHILLIPS, FREARSON AND CLUTCH HEAD SCREWS • TWO-PIECE DRIVERS FOR HEX HEAD SCREWS • SOCKETS, EXTENSIONS, ADAPTERS AND NUT SETTERS • UNIVERSAL SOCKETS, EXTENSION WRENCHES AND ADAPTERS • AIRCRAFT AND INDUSTRIAL UNIVERSAL JOINTS • SELF-RELEASING AND ADJUSTABLE STUD SETTERS • SAFETY FRICTION TAPPING CHUCKS • VERTICAL FLOAT TAPPING CHUCKS.

WIRE ROPE

This is the most efficient rope we've ever made for industrial service



JUST MENTION wire rope and most everyone thinks of Roebling. For one thing, Roebling made the first wire rope in America. But what counts more, we've always set the pace in developing better wire and better rope for the needs of every branch of industry.

Today's Roebling Preformed "Blue Center" Steel Wire Rope is industry's best bet for all-around efficiency and long life. It helps you get continuous production and stands up under rough going. It saves you time and cuts costs.

There's a Roebling wire rope of the right specification for top service on any job. Call on your Roebling Field Man for his recommendations. John A. Roebling's Sons Company, Trenton 2, New Jersey.

ROEBLING

ATLANTA, 934 AVON AVE. • BOSTON, 51 SLEEPER ST. • CHICAGO, 5525 W. ROOSEVELT RD. • CINCINNATI, 3253 FREDONIA AVE. • CLEVELAND, 13225 LAKEWOOD HEIGHTS BLVD. • DENVER, 4801 JACKSON ST. • DETROIT, 915 FISHER BLDG. • HOUSTON, 6216 NAVIGATION BLVD. • LOS ANGELES, 5340 E. HARBOR ST. • NEW YORK, 19 RECTOR ST. • ODESSA, TEXAS, 1928 E. 2ND ST. • PHILADELPHIA, 230 VINE ST. • SAN FRANCISCO, 1740 17TH ST. • SEATTLE, 900 1ST AVE. S. • TULSA, 321 N. CHEYENNE ST. • EXPORT SALES OFFICE, TRENTON 2, N. J.

Here's where CARBORUNDUM *is going with "man-made minerals"*





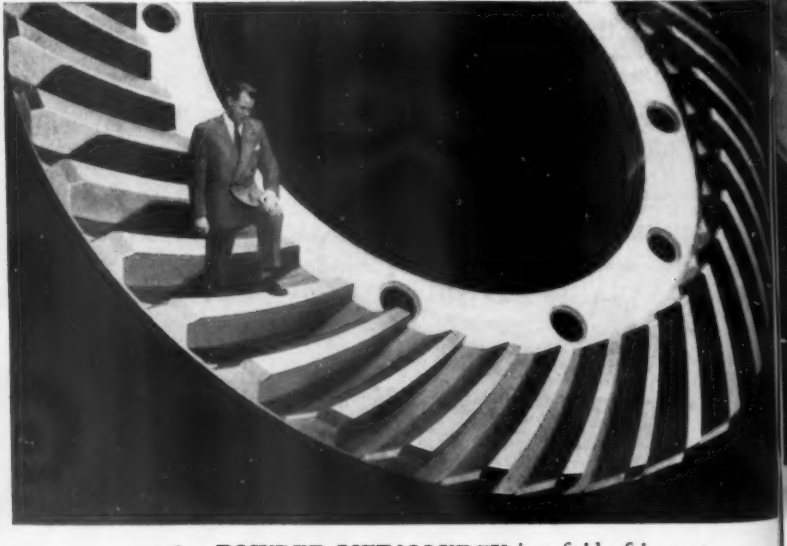
ROCKET EXHAUST LINERS are among the developments by CARBORUNDUM that take over where ordinary materials are inadequate to the task. Produced from *"man-made minerals,"* this super refractory product is highly resistant to the extremes of abrasion and high temperature produced at the rocket nozzle. Super Refractories have been developed by CARBORUNDUM to increase output and reduce operating costs where high temperatures, resistance to abrasion, corrosion or erosion are important factors.

Made by the Refractories Division



CASTINGS ARE IMPROVED in machinability when FERROCARBO, a deoxidizer used in metallurgical processes, is added to the molten metal. This product by CARBORUNDUM is effective in producing the clean castings essential to today's unusual requirements.

Made by the Bonded Products and Grain Division





POWDER METALLURGY is a field of interesting new developments. These gears are produced by sintering powdered metal in furnaces equipped with GLOBAR silicon carbide electric heating elements. Having extremely high electrical resistance and no known melting point, the heating elements make it possible to attain high heats under accurate control.

Made by the GLOBAR Division

ABRASIVE BELT LIFE WAS DOUBLED in many applications following the recent introduction of our "61" serrated rubber contact wheel. With this wheel abrasive belts not only retain effective cutting action far longer; they also produce more uniform finishes and turn out more work at less cost.

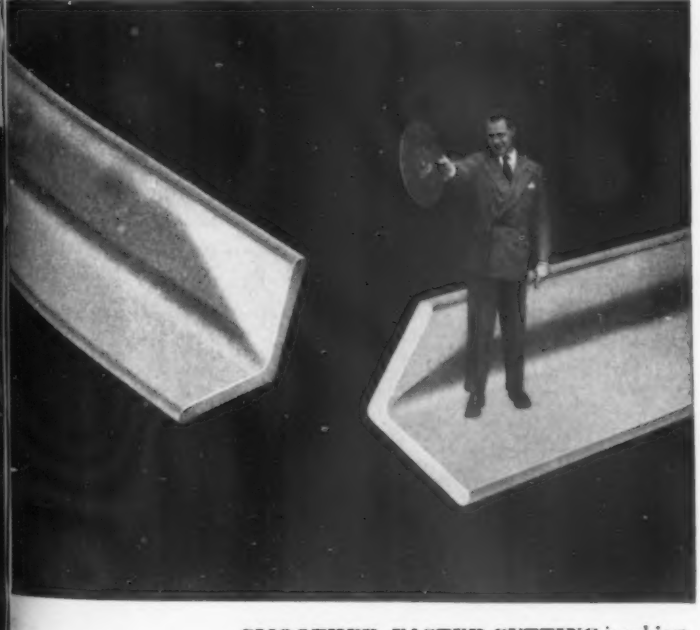
Developed by the Coated Abrasives Division





FURNITURE MAKERS are now using the new extra-hard finishes for increased beauty and durability, aided by RED-I-CUT Waterproof Abrasive Paper developed by CARBORUNDUM. This tough new paper cuts faster, gives a better finish and, as an enthusiastic shop owner expressed it, "more mileage than anything we have ever used."

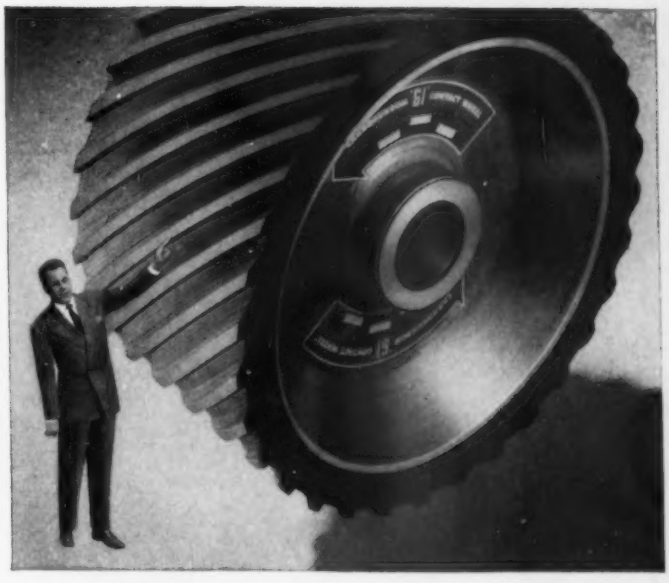
Produced by the Coated Abrasives Division





SMOOTHER, FASTER CUTTING is subject to unending investigation by CARBORUNDUM. In this field a unique combination of cotton fibres, selected abrasive grains and specially developed organic bonds is now used to produce "MX" abrasives in rigid form. These are exceptionally safe and fast in portable cut-off, deburring, general purpose grinding and similar work. They leave a smooth finish as they cut.

Made by the Bonded Products and Grain Division



Searing flame and erosive gases make life incredibly short for uncooled rocket blast tubes.

Problem without precedent: how to protect the tubes without using costly alloys. Experiment, testing and imaginative thinkin_ resulted in a solution by CARBORUNDUM—molded super refractory liners. Molded, then baked, they must emerge from the oven with tolerances of which a machinist might be proud.

Problems without precedent are the kind we like. In fact our business was born with the invention of a material without precedent, the first "man-made mineral." This was silicon carbide, a product of the electric furnace, which has since become familiar the world over in products by CARBORUNDUM.

Working with characteristics that no mineral in nature offers economically in equal degree, or in the same combinations, CARBORUNDUM has made silicon carbide and aluminum oxide useful to industry in a great diversity of services. A few of these are illustrated here.

If they, or any of the newer forms and applications of "man-made minerals" now under development by CARBORUNDUM, call up possible new or more effective applications in your field, we invite your inquiry.

Look to

CARBORUNDUM

TRADE MARK

for the real news about "man-made minerals"

THE CARBORUNDUM COMPANY, NIAGARA FALLS, N. Y.

Products by CARBORUNDUM include Grinding and Cutting-Off Wheels, Discs and Sticks... Coated Abrasive Sheets and Belts... Waterproof Abrasive Paper... Abrasive Grain and Powders and other abrasive products... Electric Heating Elements and Ceramic Resistors... Grain and Briquettes for deoxidizing steel and iron... Super Refractory Bricks, Special Shapes and Cements... Porous Filter Media and Diffusers—and are marketed under the following trademarks:

CARBORUNDUM • ALOXITE • MX • RED-I-CUT • GLOBAR • FERROCARBO CARBOFRAX • ALFRAX • MONOFRAX • MULLFRAX



Prest-O-Lite
Trade-Mark

dissolved ACETYLENE

in small tanks for SOLDERING, HEATING, LIGHT BRAZING

because...

PREST-O-LITE Gas Tanks are built to quality standards even beyond government specifications. This means extra resistance to dents, punctures, and corrosion—an extra measure of ruggedness that pays off in added years of economical service.

because...

PREST-O-LITE Tanks are checked and serviced *every time we charge them*, under a rigid plant routine that surpasses both Federal and State fire and safety requirements.

because...

This *complete* small tank service assures you of maximum protection and convenience. It is available exclusively through authorized distributors who handle only genuine PREST-O-LITE Gas and Small Tanks.

because...

PREST-O-LITE Gas is so easy to get. Thousands of authorized PREST-O-LITE Gas Service Stations throughout the country can supply new tanks or exchange full tanks for your empties. Write for addresses of those near you. LINDE AIR PRODUCTS COMPANY, a Division of Union Carbide and Carbon Corporation, 30 East 42nd St., New York 17, N. Y.

PREST-O-LITE Gas is available in two convenient sizes of steel tanks: MC Tank (left) holds 10 cubic feet; B Tank (right) holds 40 cubic feet.

The term "Prest-O-Lite" is a registered trade-mark of Union Carbide and Carbon Corporation.



NOW HE KNOWS IT'S RIGHT. "He" could be a final or process inspector, a foreman or a tapping machine operator — anyone at a key point on the production line.

But, he could also know when all is **not** well. This gage could warn of a dull tap, a drill going wrong, misalignment in a set up. All these and other faults can be detected by proper gaging.

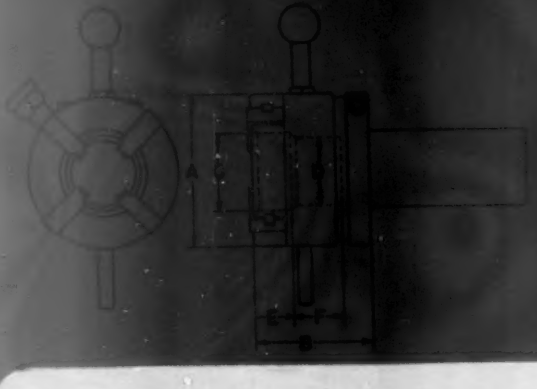
Know that it's right. Prevent waste. Use good gages!

GREENFIELD TAP and DIE CORPORATION

GREENFIELD, MASSACHUSETTS

GEO MET RIC **C**

Style C





SPECIFICATIONS STYLE C WITHOUT LATERAL FLOAT ...-OFF TRIP

Style and §Size Inches	Construction Number	CAPACITY				Code Word	A	B	C	D			SHANKS					
		Straight Threads			Standard Pipe Threads								Standard		Also Available			
															‡Max.		△Min.	
		Diam. Inches	*Lgth.	Coarsest Pitch									Dia.	Lgth.	Dia.	Lgth.	Dia.	Lgth.
C-1¼	12678-K	⅜" to 1¼"	2"	8	⅛"– ¾"	Cameo	3⅞"	3"	1⅝"	1⅜"	1⅛"	1⅜"	1¼"	3¾"	1½"	3¾"	1"	1½"
C-1¾	A6393-D	¾" to 1¾"	2"	8	½"–1¼"	Canter	4½"	3⅛"	2⅛"	1⅜"	1⅛"	1⅞"	1¾"	4"	2⅛"	4"	1⅛"	2"
C-2¼	A5167-J	1¼" to 2¼"	2¼"	8	1" –1½"	Canvas	4⅝"	3⅜"	2⅝"	2⅜"	1⅛"	1⅜"	2"	4¼"	2⅜"	4¼"	1⅛"	2"
C-2½	20504-F	1½" to 2½"	2"	8	1¼"–2"	Carte	5¼"	3⅛"	2⅜"	2⅜"	1⅛"	1⅜"	2¼"	4½"	2¾"	4½"	1⅛"	2"
†C-2½	12744-D	1¼" to 2½"	3⅞"	7	1" –2"	Carmine	5¾"	4⅝"	2⅜"	2⅜"	1½"	2⅞"	2¼"	4¾"	3"	4¾"	1½"	2½"
C-3	30123-H	1½" to 3"	2½"	8	1¼"–2"	Catch	5⅞"	3½"	3⅜"	3⅛"	1⅛"	1¾"	2¼"	4¾"	3⅜"	4¾"	1½"	2½"
†C-3¼	93271-R	2⅛" to 3¼"	2¾"	8	2"	Cement	6½"	3⅞"	4⅛"	3⅛"	1⅛"	2⅛"	2½"	5"	4⅛"	5"	1¾"	2½"
†C-4⅛	49270-C	2⅛" to 4⅛"	3½"	7	***2½"–4"	Certain	8¼"	5¼"	5⅛"	4⅜"	1⅜"	2⅝"	2¾"	5½"	5"	5½"	2"	3"
†C-6	28831-E	3⅛" to 6"	3¾"	7	***3" –5"	Chauk	11"	5⅛"	6⅝"	6¼"	1¼"	3"	3"	5¾"	5½"	5¾"	2¼"	3"

§Other sizes can be furnished where required. Price quoted on specific inquiries.
†These Die Heads are fitted with Roughing and Finishing Attachment.
*Length that can be cut when shank is solid.
***Projection Chasers required for pipe sizes within listed capacities.

‡Maximum shank without bushing.
△Minimum recommended size.

GEOMETRIC TOOL COMPANY DIVISION
Greenfield Tap and Die Corporation
NEW HAVEN 15, CONNECTICUT



You're sighting on the moose through a Weaver Scope, made by W. R. Weaver Company, El Paso, Texas

The Superior Tube That Puts You "On Target"

Hitting specification bull's-eyes to help our customers hit their production targets is a Superior specialty.

A case in point is illustrated above. The customer, W. R. Weaver Company manufactures high-quality telescopic sights for sporting and target rifles. The carbon steel tube in which the lens elements, reticule and eye piece are mounted must be strong and rigid. Tube material must have excellent machining qualities to permit fast, economical, precision working. Because salability depends a good bit on fine appearance, the tube must be extremely smooth and free from pits and scratches. This is particularly true of the larger sizes where tube ends are expanded, making imperfections more evident. Inside surface must also be smooth and to accurate dimensions.

Ordinarily you might expect tubing to fit such requirements for smoothness plus temper and machinability would be a "premium" item carrying extra charges for special handling.

Not at Superior. Here we can take the most exacting specifications in stride because of our experience and "know-how" backed by highly developed production equipment and extensive research and testing facilities.

If you have need for fine, small tubing to do a tough job well, check with us. We can probably fill your requirements from the stocks of our distributors who are located in principal cities. Write Superior Tube Company, 2034 Germantown Ave., Norristown, Pennsylvania.

BE SURE ABOUT TUBING—SPECIFY **Superior**

THE BIG NAME IN SMALL TUBING

All analyses .010" to ⅜" O.D.
Certain analyses (.035" max. wall) up to 1⅜" O.D.

ROUND AND SHAPED TUBING

Available in:

Carbon Steels:
A.I.S.I.—C-1008, MT-1010, MT-1015, C-1118, MT-1020, C-1025, C-1035, E-1095

Alloy Steels:
A.I.S.I.—4130, 4132, 4140, 4150, 8630, E-52100

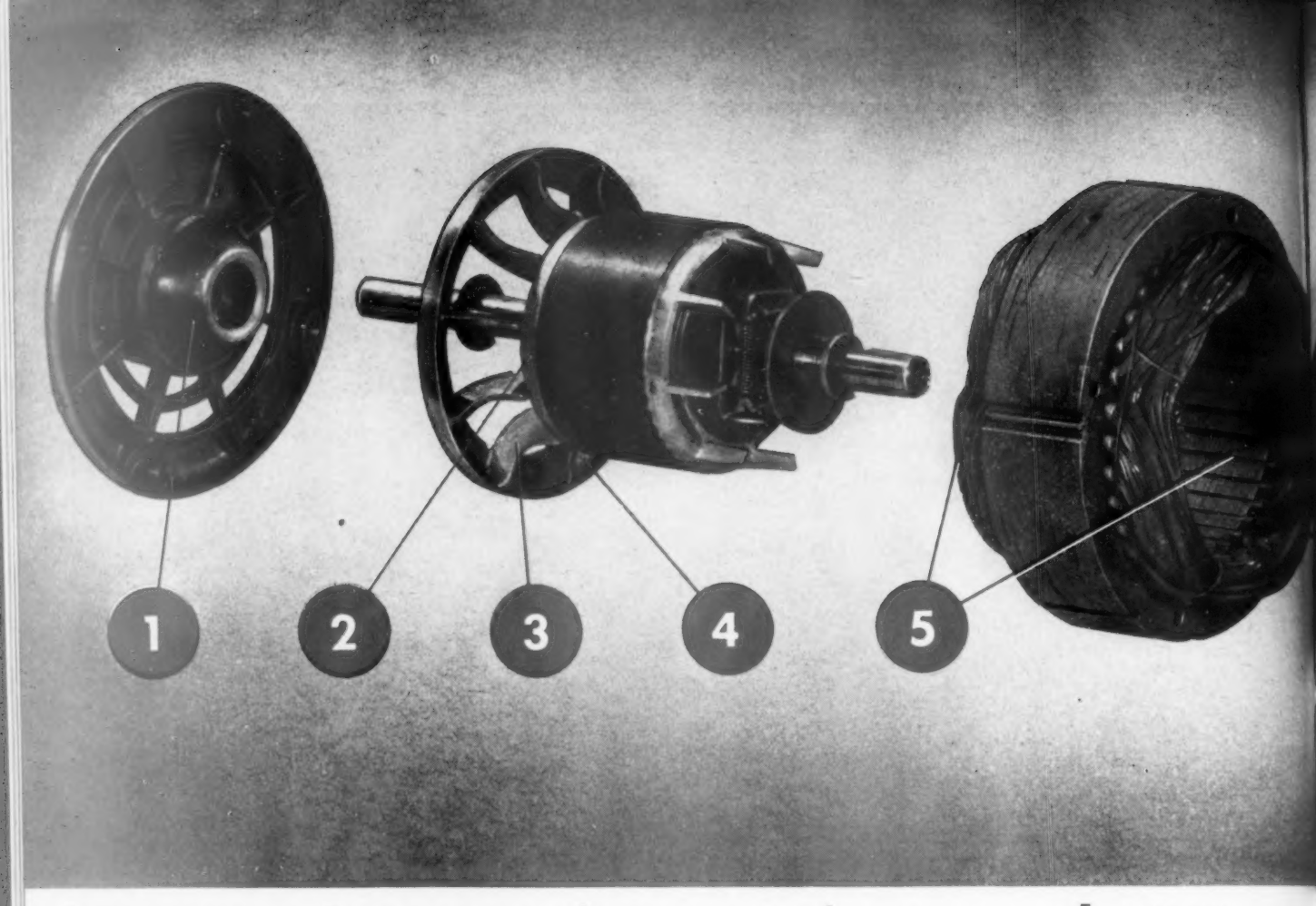
Stainless Steels:
A.I.S.I.—303, 304, 305, 309, 310, 316, 317, 321, 347, 403, 410, 420, 430, 446, T-5

Nickel Alloys:
Nickel, "D Nickel"*, "L Nickel"*, "Monel"*, "K Monel"*, "Inconel"*, 30% Cupro Nickel.

Beryllium Copper:

West Coast: Pacific Tube Company, 5710 Smithway St., Los Angeles 22, Calif. UNderhill 0-1331.

*Reg. U. S. Trademark International Nickel Company



1. VERSATILE!—All-angle bearing and lubrication system permits motor to operate in any position.

2. SMOOTH RUNNING!—Precise rotor balancing and concentricity of rabbets and bearings.

3. EFFICIENT!—New electrical design, ventilation give top performance in least space.

4. QUIET!—Advanced magnetic design and unitized rotor-fan casting provide quiet operation.

5. LONG-LIFE!—*ALL* synthetic insulation resists moisture, corrosion and electrical breakdown.

Ten good reasons for using t

Above you see ten good, basic reasons for using the all-new G-E "form G" motor—right now! And at your right are four big "plus" reasons perhaps even more important to you.

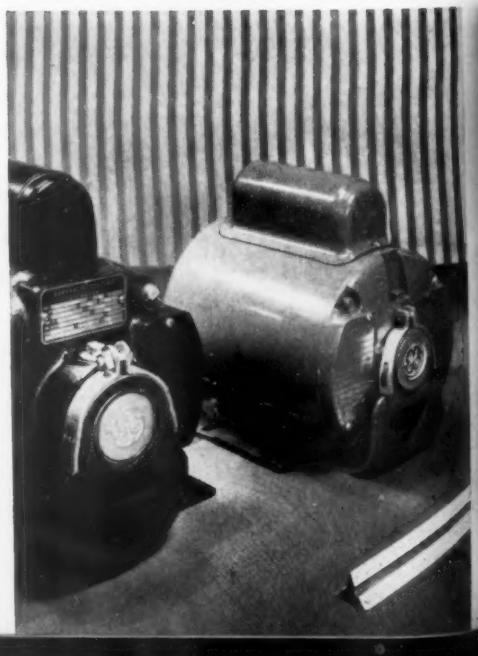
Completely different . . . completely *functional* . . . this general-purpose motor gives you full NEMA performance plus up to *50% less weight, 40% less bulk—rating for rating!*

You get efficiency, sturdiness, extra long life . . . *plus quiet, all-angle operation in every rating!*

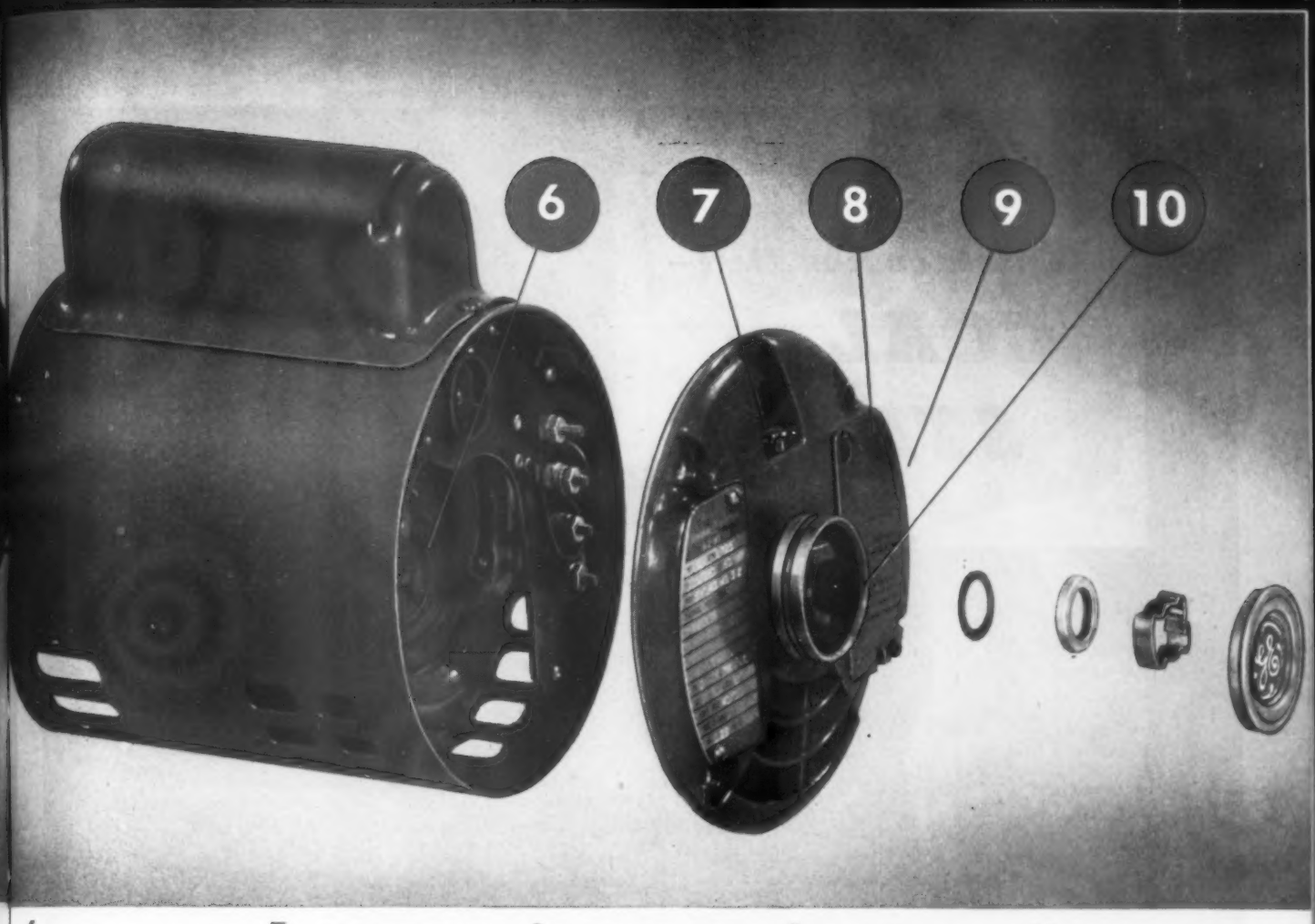
Now you can improve your product, speed assembly time, cut your handling and shipping costs.

Want more good reasons for using this new motor? Contact your nearest G-E Apparatus Sales Office or write for bulletin GEA-5567. Address Section 700-121, General Electric Co., Schenectady 5, N. Y.

SMALLER . . .



GENERAL ELECTRIC



6. STURDY!—Another G-E innovation: shell is expansion-fitted to stator: a strong *unit* assembly.

7. LESS MAINTENANCE! Spacious oil reservoirs—no lubrication required on some applications.

8. CONVENIENT!—Roomy terminal box—cover has connection and lubrication instructions.

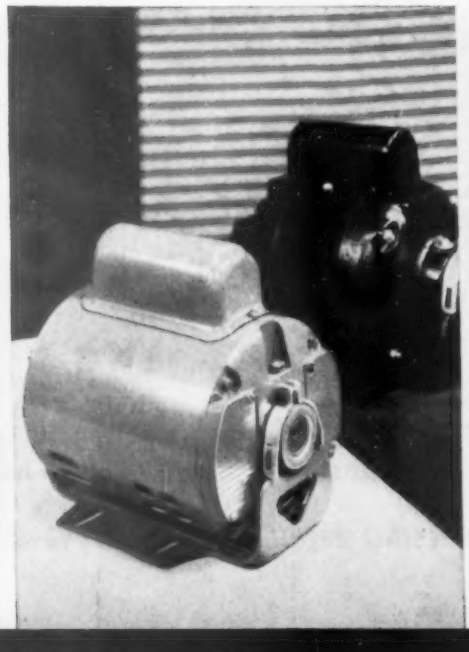
9. RIGID!—This motor has strong, lightweight aluminum end shields especially rib-reinforced.

10. FLEXIBLE—Cradle bases—*solid* or resilient—facilitate easy mounting in any position.

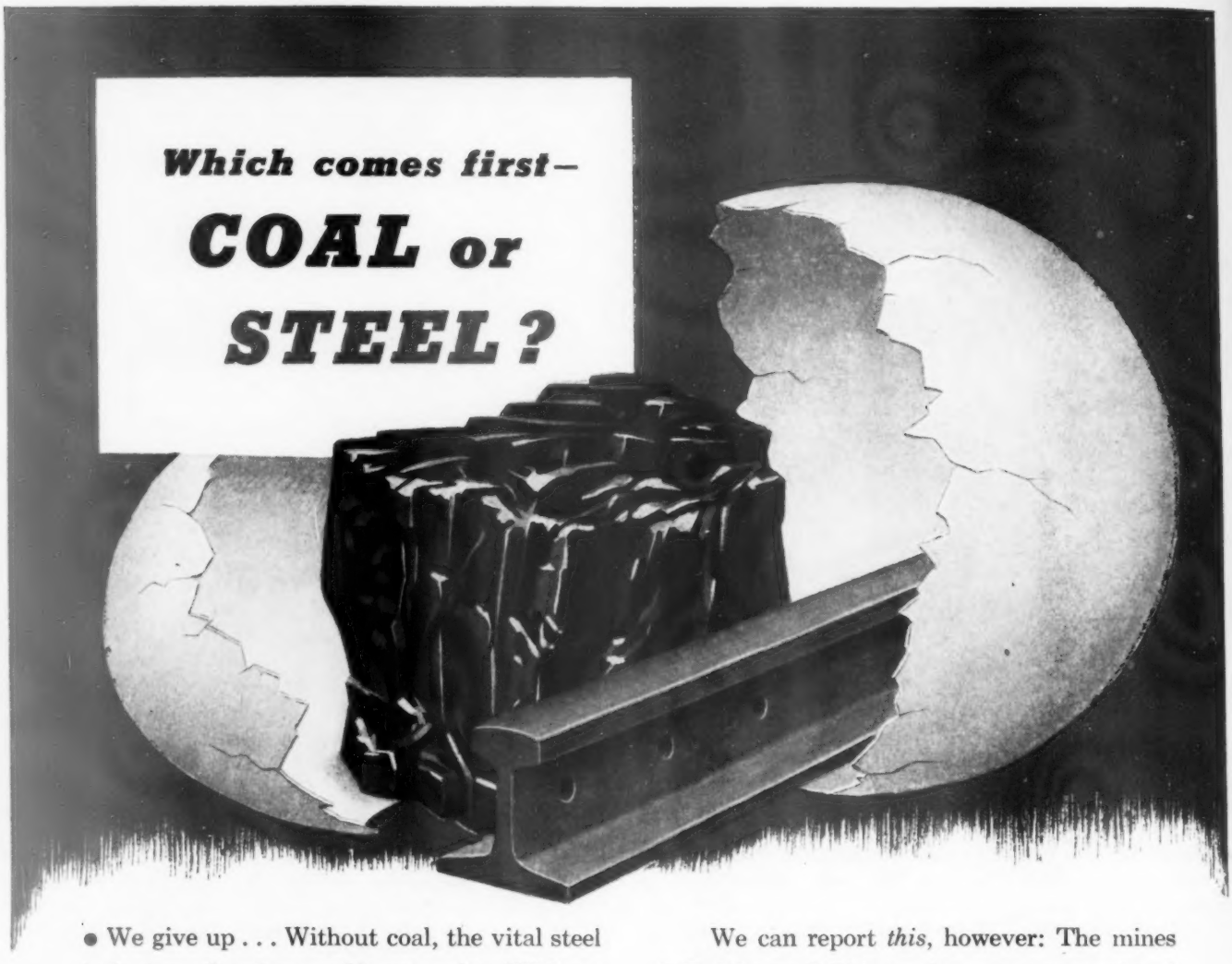
the all-new G-E Fhp motor!

LIGHTER . . . ***BETTER LOOKING . . .*** ***MORE VERSATILE!***









• We give up . . . Without coal, the vital steel industry of today could not exist. Without steel, the enormous tonnage of coal needed by the steel industry could not be produced or delivered. Here is another example of the interdependence of two basic industries!

We can report *this*, however: The mines in Baltimore & Ohio territory are prepared and equipped to go right along with the steel industry in its expansion program. Too, there are millions of tons of untapped reserves of coking coals available for development.

These coals are available in varieties for all coking needs. They are easily accessible, and in plentiful supply for long-range planning. Whatever your requirements, let us advise you. Just *ask our man!*

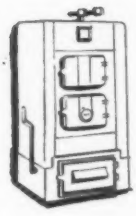


BITUMINOUS COALS FOR EVERY PURPOSE

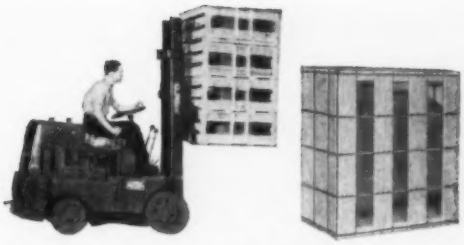
LINKING 13 GREAT STATES WITH THE NATION
B&O

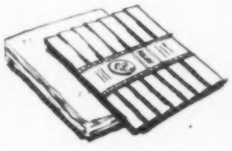
BALTIMORE & OHIO RAILROAD

Constantly *doing things*—better!



BOILERS





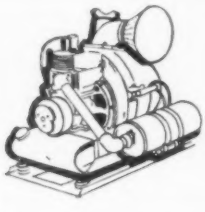
BACON





BOMBS





BLOWERS





BEARINGS



WIREBOUND BOXES AND CRATES

handle them all—from A to Z

Whether your product is large, small, rugged, fragile, heavy or light, it will ship *better, safer* and *more* economically in a Wirebound Container.

Prove it to yourself!

Wirebound
BOXES & CRATES

wood and steel for strength and resiliency

MAIL THIS COUPON, TODAY!

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Room 1153, 327 South LaSalle Street, Chicago 4, Illinois

Gentlemen:

☐ *I want the A.B.C.'s about Wirebounds. Send a free copy of your booklet, "What to Expect from Wirebound Boxes and Crates."*

☐ *Please have a Wirebound sales engineer give me the facts as they apply to our product.*

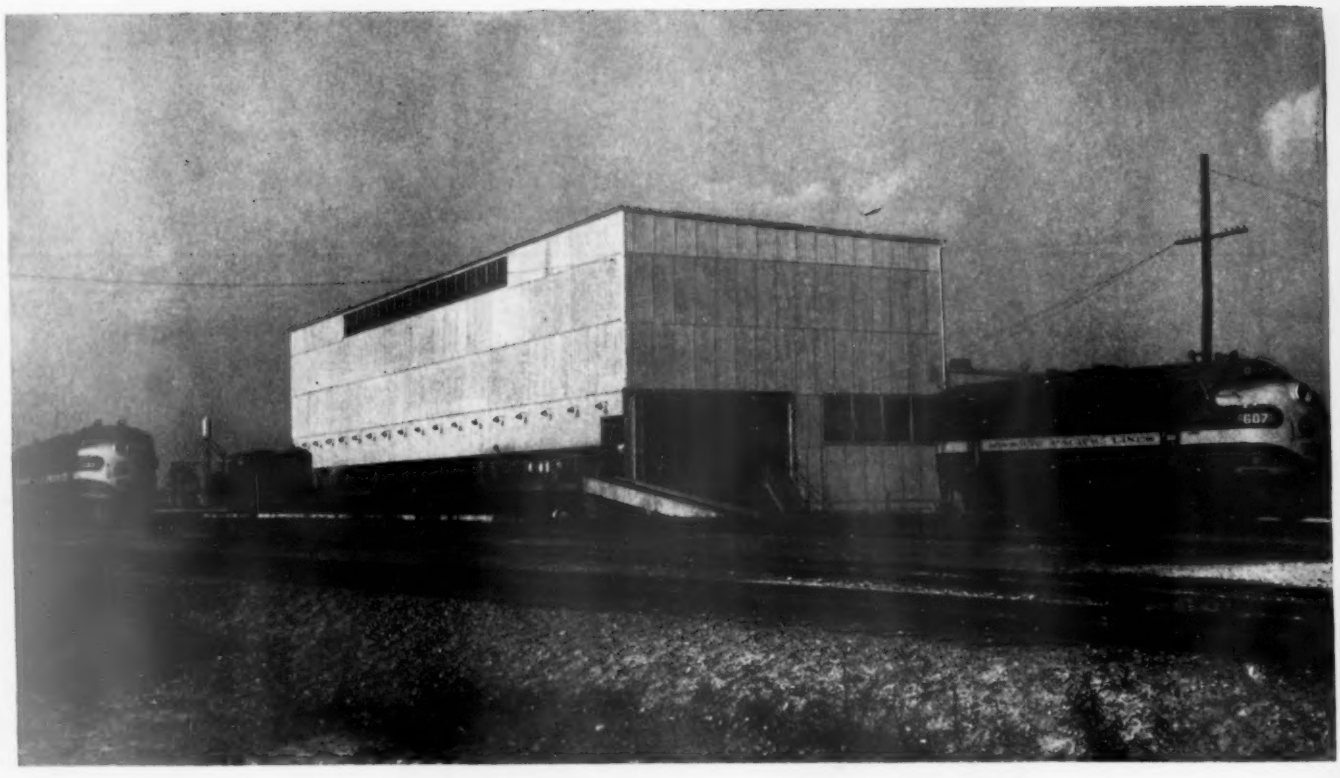
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Our Product is _____ It Weighs _____



There's no maintenance problem where you use "CENTURY" corrugated asbestos-cement sheets



Diesel Repair Shop, Signal and Control Tower at the Settegast Freight Yard of the Missouri Pacific Lines at Houston, Texas. Buildings sided with long-lasting "Century" Corrugated Asbestos-Cement Sheets. Engineers and Builders: The Austin Company

As you know, among railroading's headaches are its many maintenance jobs. Here a big one was lopped from the list, right at the start—by the use of "Century" Corrugated Asbestos-Cement Sheets . . . because roofs and siding of "Century" Asbestos Corrugated reduce upkeep to a minimum.

Buildings so constructed provide permanent protection for men, equipment, materials and finished products. "Century" Asbestos Corrugated *can not burn, rot or rust;* rodents and termites can't hurt it; it resists many chemical fumes. And regardless of climate, driving winds and deluging rains, it never needs protective painting to preserve it!

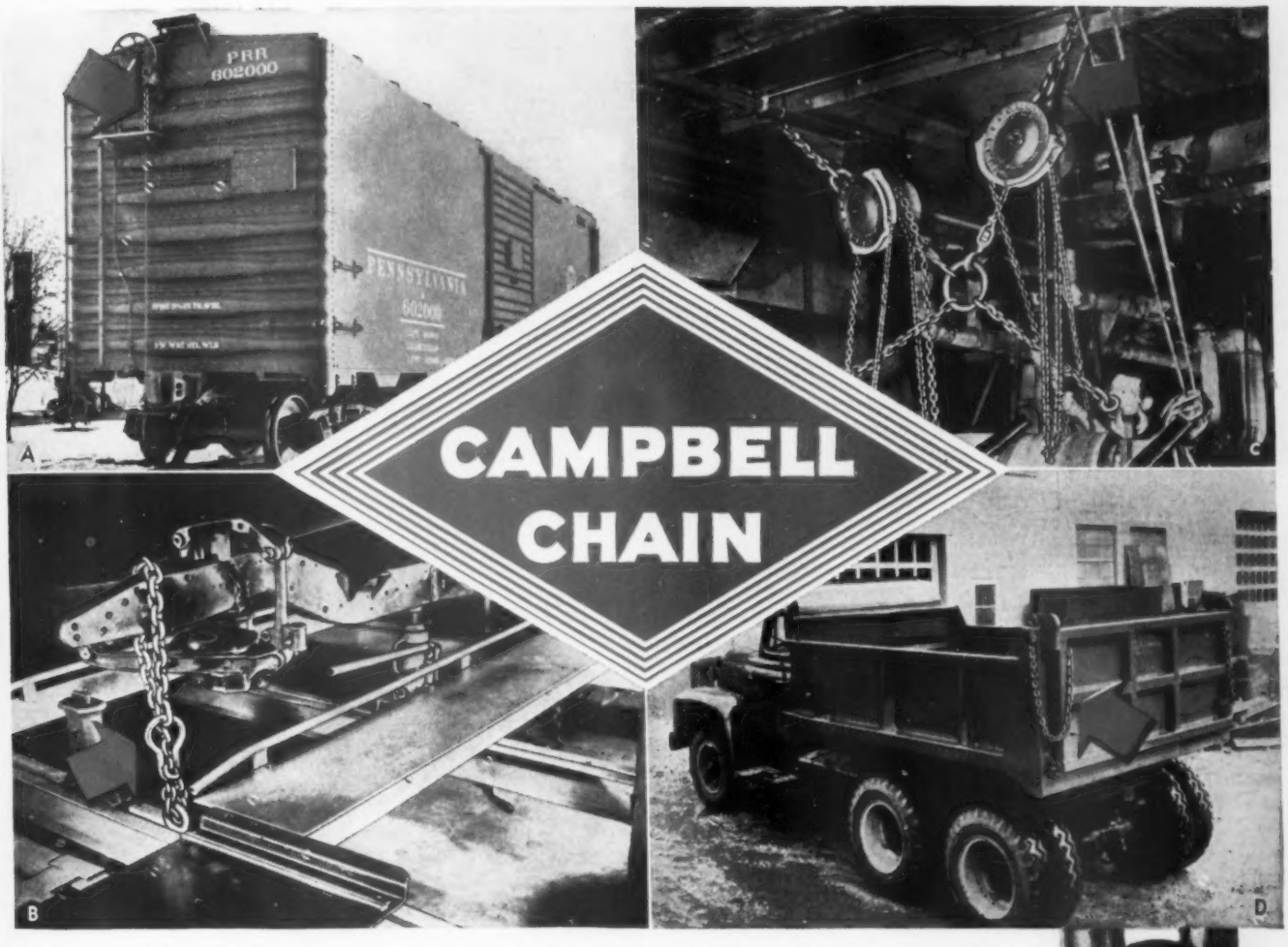
This unique material can be applied quickly, easily and inexpensively. The sheets are very strong, yet can be cut and drilled with ordinary working tools, and fastened in place with a minimum of labor.

If you are planning to construct from the ground up, or need merely to "re-cover" an old building, give earnest consideration to the outstanding money-saving qualities of "Century" Corrugated Asbestos-Cement Sheets for both roofing and siding. We'll be glad to send you complete details on request.

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Every link of Campbell Chain is inspected before it leaves the factory —Campbell's guarantee of rugged dependability and long lasting service.

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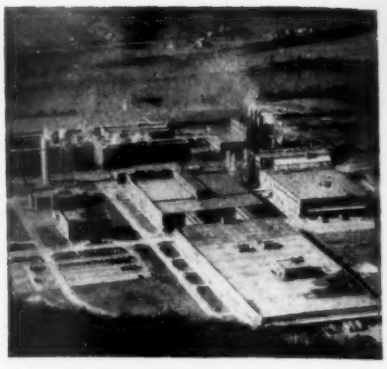




LOYCO No. 111-A gate valve for 150 pounds
rvice is made in a wide range of analyses to
ecification and regularly stocked in popular alloys.

Lasts longer in corrosive service

This bolted bonnet type gate valve, made to specification, provides the three basic advantages of all ALOYCO valves . . . (1) special engineering for severe corrosive service through (2) extensive metallurgical research and (3) production of high alloy valves exclusively.



Celanese values valves for long wear, too

The same insistence on quality that makes Celanese* acetate yarns and fibers outstanding marks Celanese Corporation's choice of valves.

That's why Celanese called on the *Aloyco Corrosion Clinic* to recommend a valve for handling acetic anhydride and acetic acid used in making cellulose acetate flake. After thorough analysis of these corrosives, the Clinic advised ALOYCO 18-8SMo No. 111-A high alloy gate valves.

Like Celanese, thousands of leading firms in the process industries have found that the correct ALOYCO valve lasts longer (lower valve cost) and reduces valve maintenance and downtime for valve repair or replacement.

Why? Because the *Aloyco Corrosion Engineers specialize* in corrosion-resistant valves for solving problems of severe service and product contamination.

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*Reg. U. S. Pat. Off.

ALLOY STEEL PRODUCTS CO., INC.
1312 West Elizabeth Avenue, Linden, N. J.

Longer Lasting
ALOYCO VALVES
1st in Corrosive Service

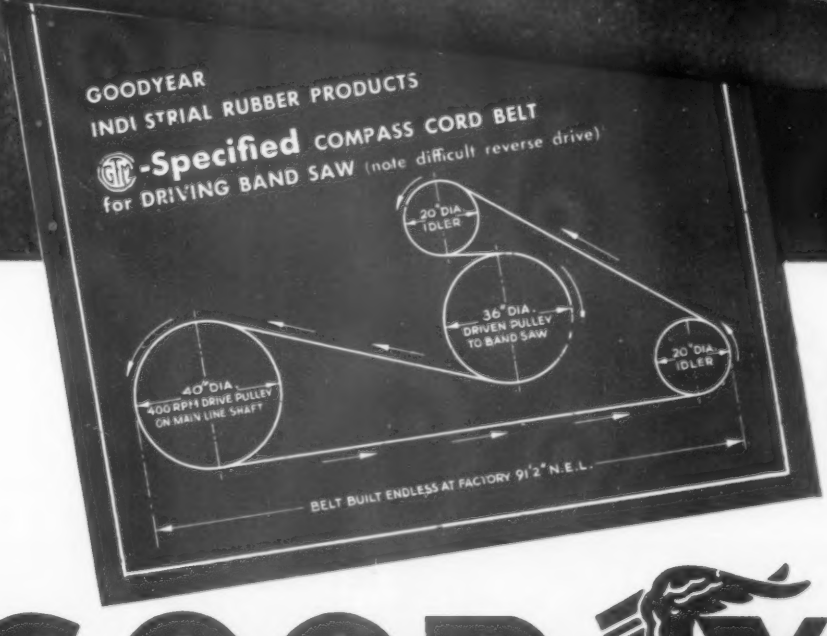
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The G.T.M.—Goodyear Technical Man—specified COMPASS CORD belt built with single ply of load-carrying cords. COMPASS has served 13 years so far—still looks good for more service.

The COMPASS belt has never been touched since application—has saved at least $400 to $500 thus far.



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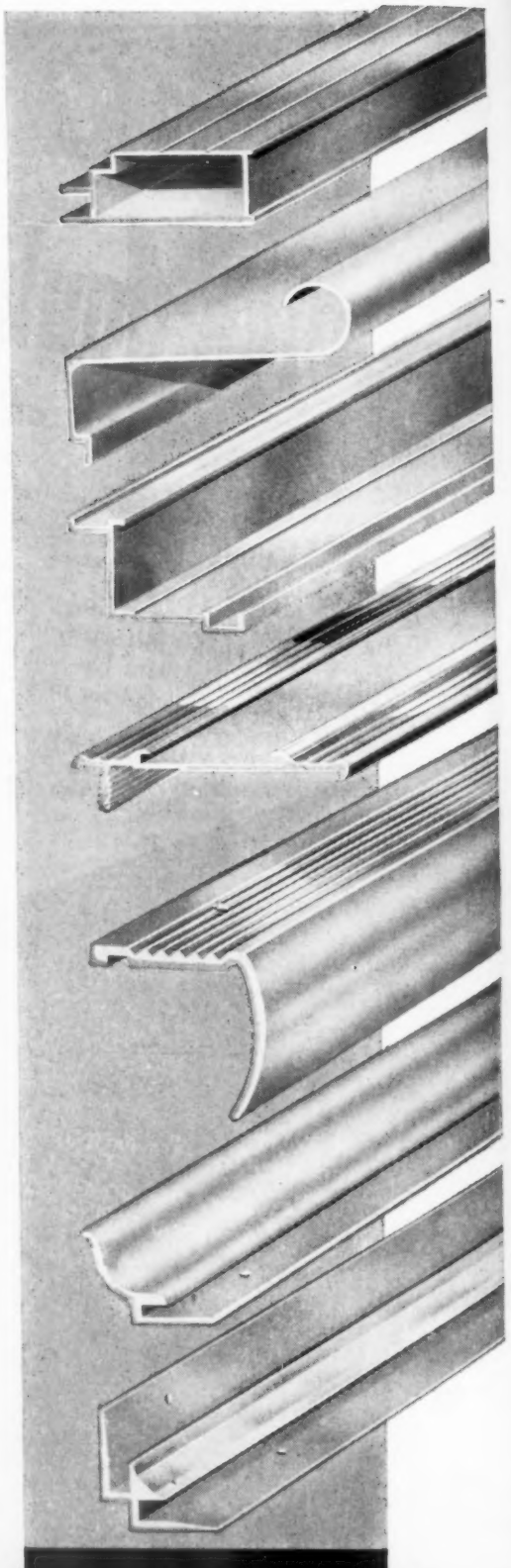
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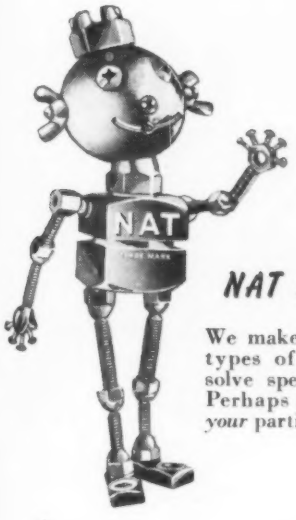
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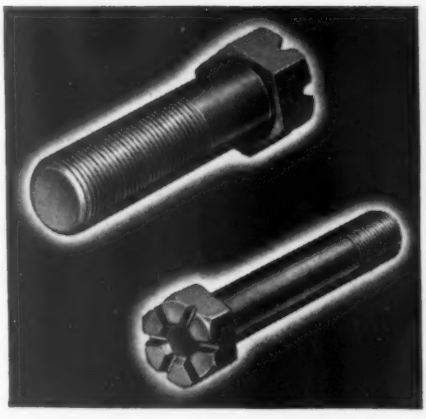
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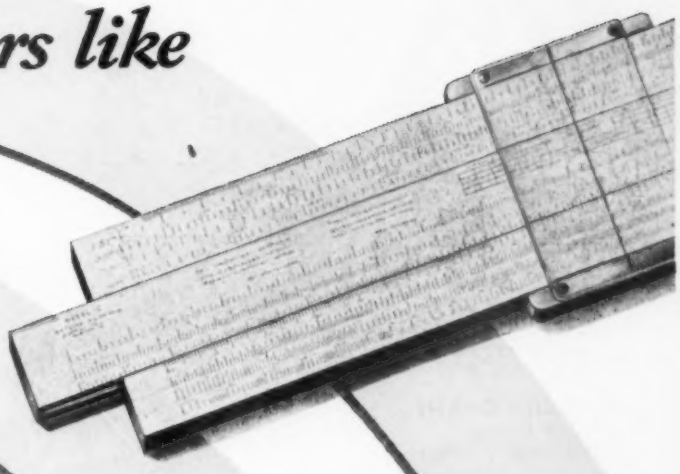
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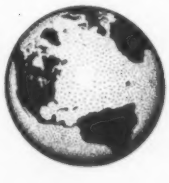
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R-P & C VALVE DIVISION

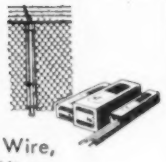
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AMERICAN CHAIN

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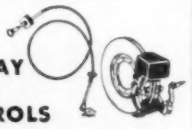
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TRADE MARK

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This Construction Machinery Lubrication Book



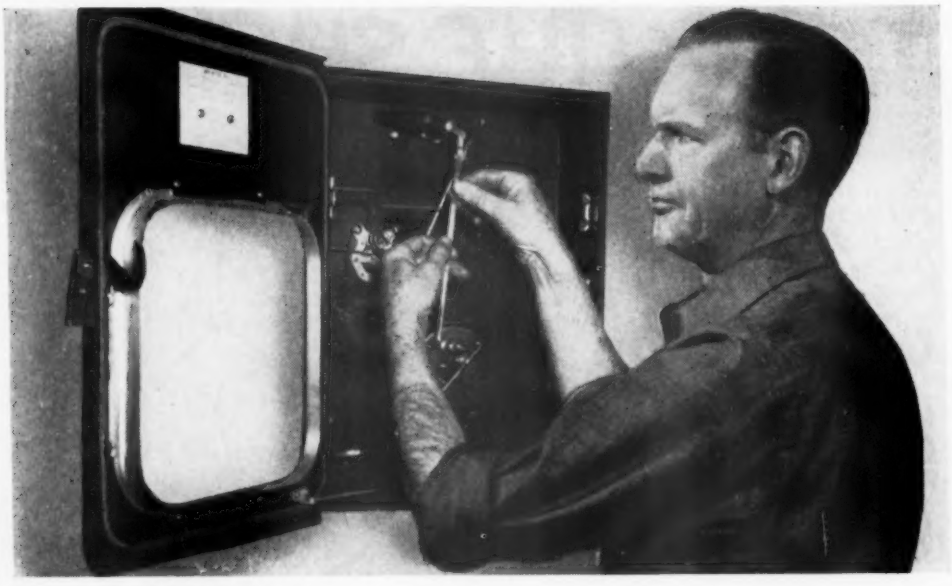
WORKS ON YOUR DESK

Look up Crawlers, or Calcium Greases, or Diesels or whatnot concerning Earth Moving and Construction Equipment. You'll find your subject covered authoritatively and understandably, from mechanical principles to technicalities. You'll realize that your up-to-the-minute Cities Service book of 56 pages, with sharp drawings and photos, has been developed to broaden your own fundamentals of lubrication *whys, hows and whats.*

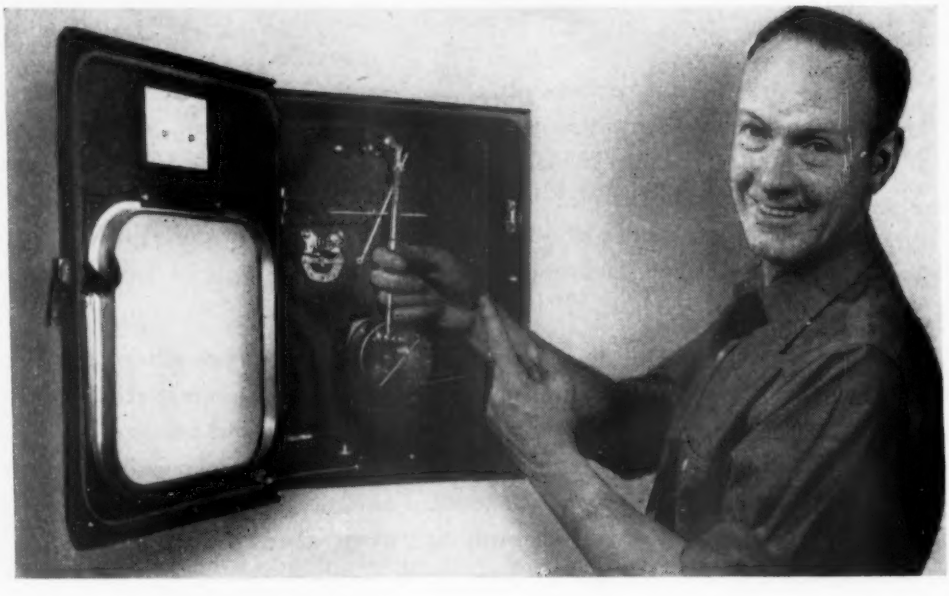
You will be able to size up closely the Cities Service lubricants described. You'll notice the self-evident good sense of each specific Cities Service recommendation. And man, it really is specific, because Cities Service makes such a complete line for all types of equipment you may employ. This book's recommendations on Cities Service lubricants—as field records show—will produce savings of oil, grease, downtime and parts to make your judgment look mighty good. Now ... write for your 1952 edition of *Earth Moving and Construction Machinery Lubrication.* CITIES SERVICE OIL COMPANY, Dept. L32, Sixty Wall Tower, New York City 5.

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"Shake hands" with AO's "super" line of hand protection for welders. Each glove and mitten is 14″ long . . . has a smooth finish . . . improved heavy weight soft lining on back for greater protection . . . quality edges bound with tape and stitched. These are features which make this chrome-tanned *horsehide* line better than ever. Test them on the job. *See* the difference! *Feel* the difference! Your nearest AO Safety Products Representative can supply you.

TX100 Gunn cut—one piece back. Double thickness of leather on first finger and thumb, also on portion of palm. Lined on back from wrist to finger-tips.

5X163 Gives exceptional resistance to heat on gas welding and heaviest amperage electric welding. One-piece back and palm. Welted at all vulnerable seams. Extra heavy lining on back of hand.

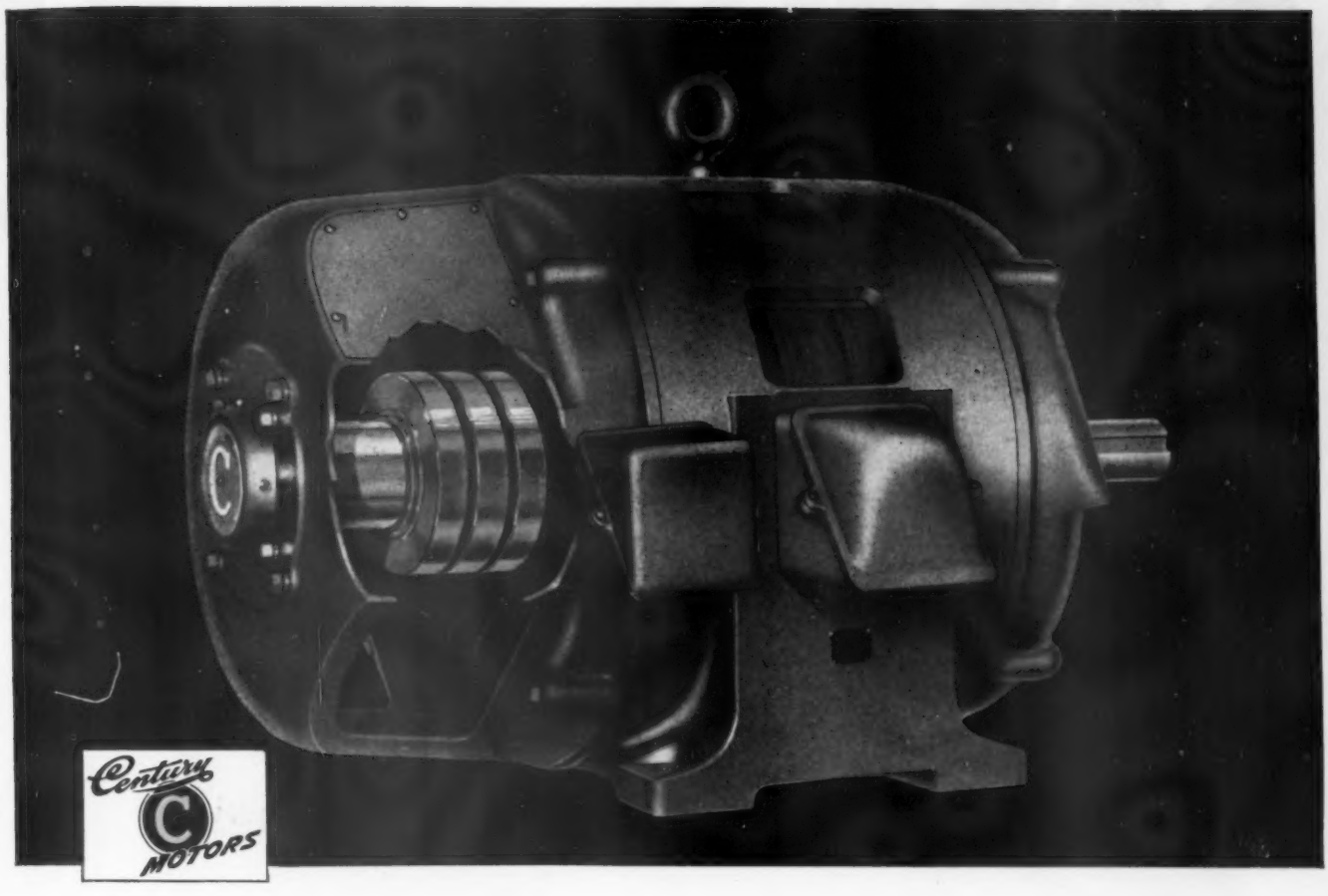
TX200 Gunn style. Standard size (11) also sizes 10, 12. Welted seam at base of palm and wrist. One-piece back. Wing thumb.

6X141 One-piece back and palm. Crotch of thumb reinforced with wide leather strap. All vulnerable seams welted for extra protection. Back of hand is lined.

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It's the famous Dodge metallic-backed neoprene seal that has proved itself in thousands of installations. It stays put. It can't blow. It keeps lubricant in—dust and dirt out—even at low speeds.

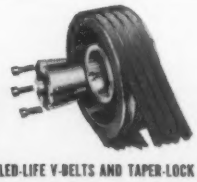
The SC Ball Bearing Pillow Block for small shafts and moderate loads, is a precision-built unit—a member of the famous Dodge 30,000-hour line. Modern styling . . . rugged one-piece semi-steel housing . . . long inner race . . . radial and thrust load capacity . . . fully self-aligning. Available from distributors' stocks in shaft sizes from $\frac{3}{4}$" to $2\frac{7}{16}$". Write for special bulletin giving complete specifications.

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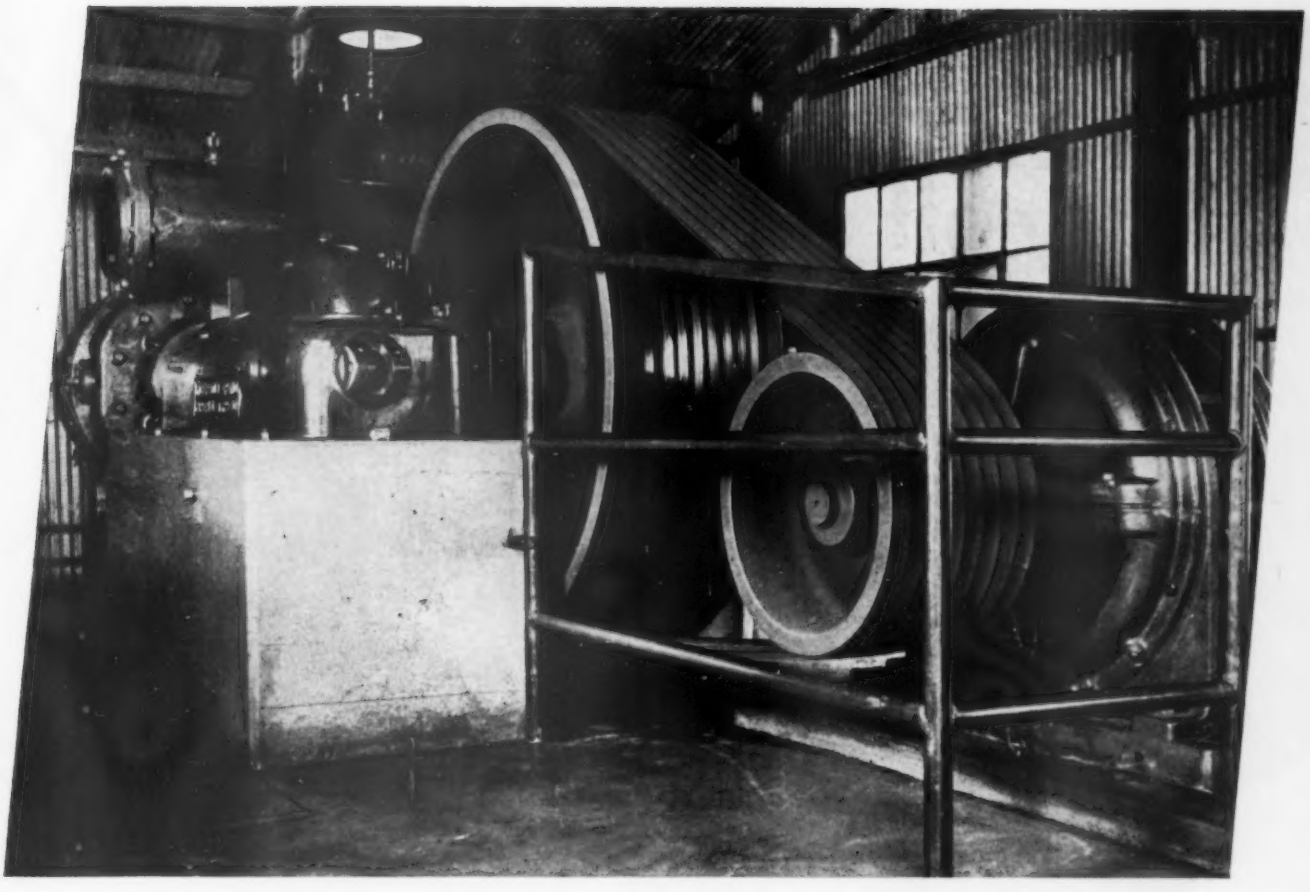
DODGE-TIMKEN PILLOW BLOCKS



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Industrial Rubber Products
Quality Value Service

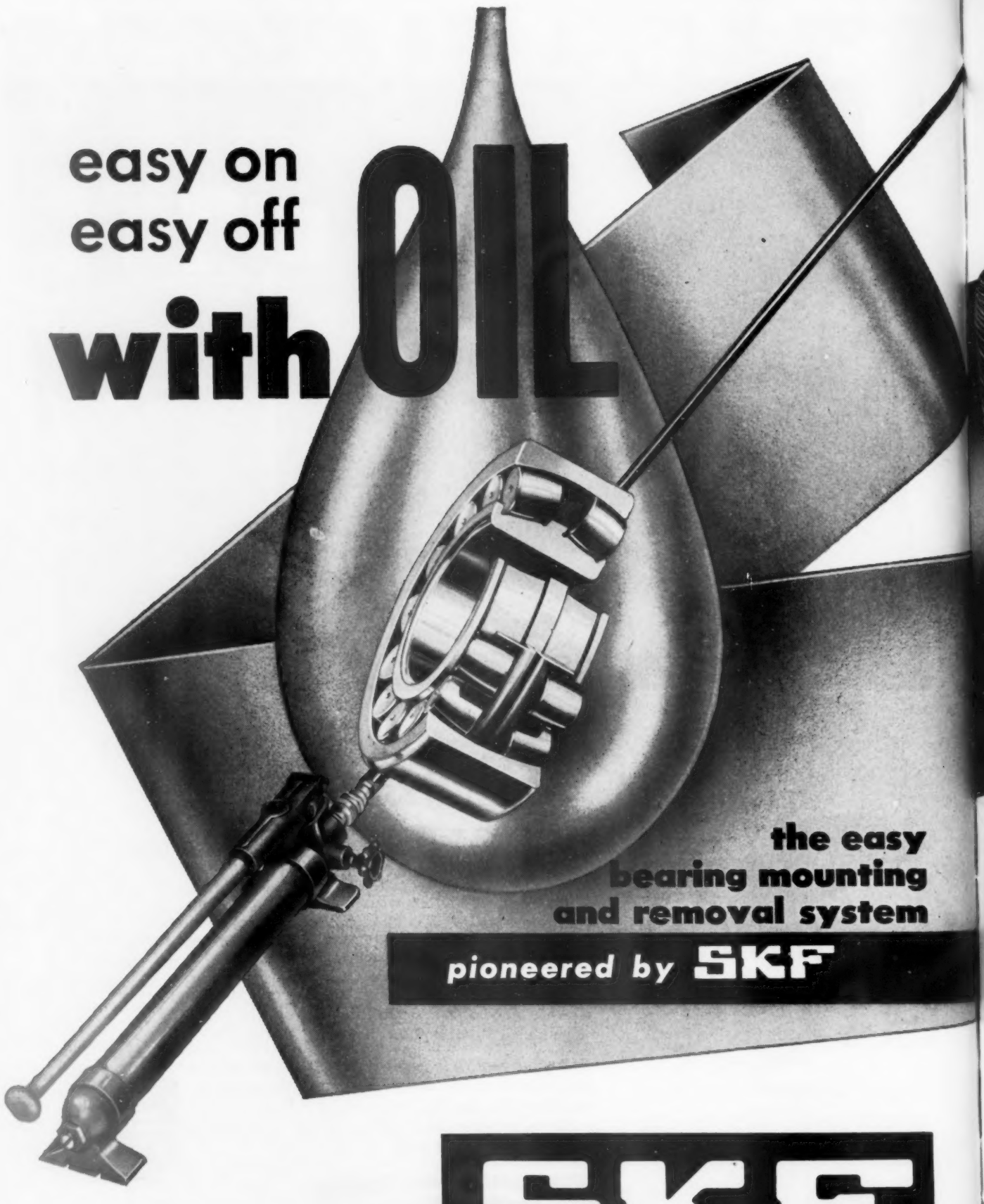
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Engineered for extra strength

An important value you get with TUBE-TURN Welding Fittings and Flanges is extra strength . . . at no extra cost.

For example, this TUBE-TURN Welding Tee will withstand more pressure than required by standard codes . . . because it is drawn from seamless tubing to a barrel shape, and because of its generous crotch radius and thickness. Bursting pressures obtained in tests of representative fittings have averaged more than 25% higher than code requirements.

For this extra quality get in touch with your nearby TUBE TURNS' Distributor. You'll find one in every principal city.



Scrappy says: "Aid defense—more scrap today . . . more steel tomorrow."

Write Dept. P-12 for free booklet on Allowable Working Pressures.



Be sure you see the double "tt"



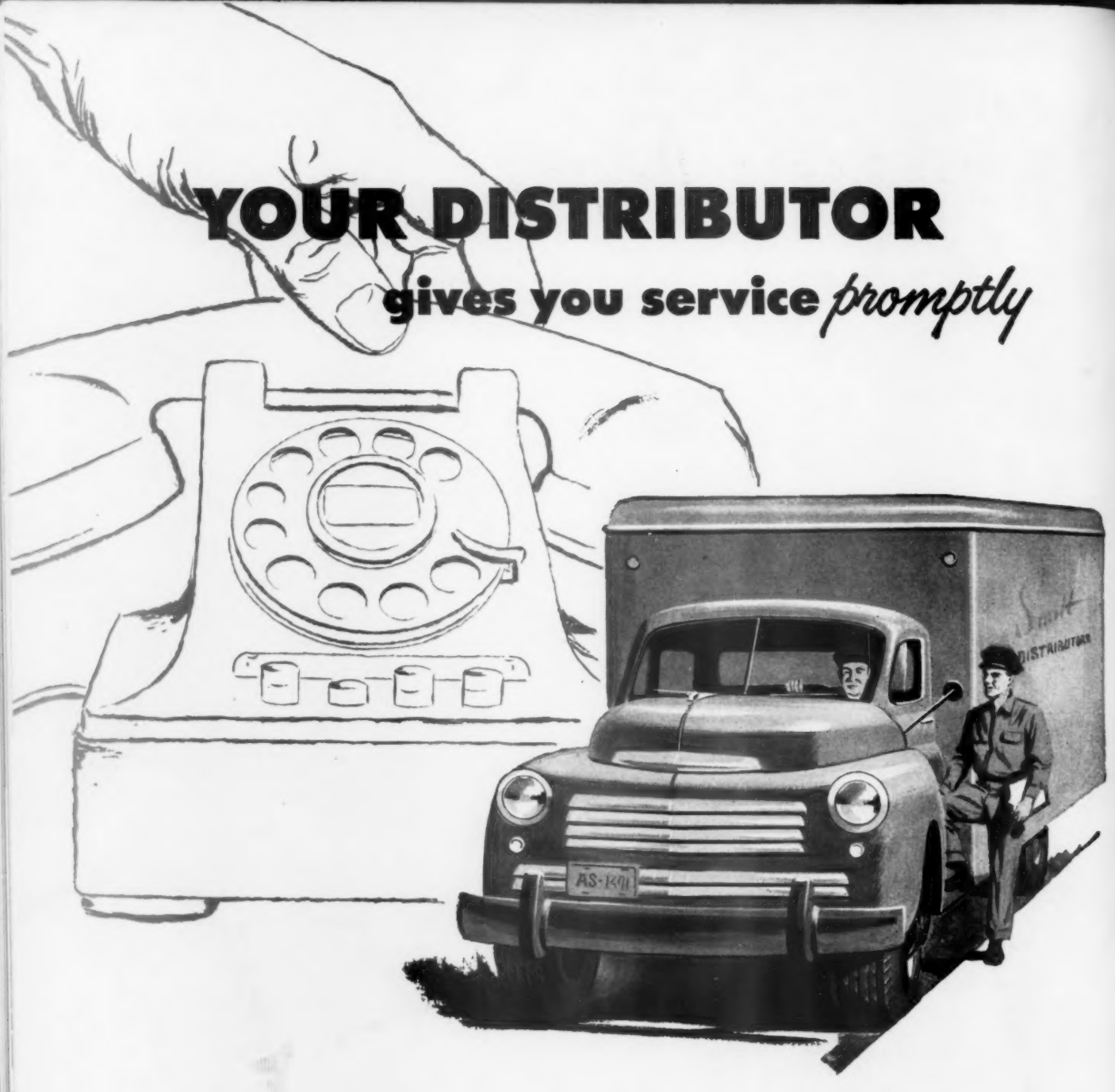
TUBE TURNS, INC. LOUISVILLE 1, KENTUCKY

DISTRICT OFFICES: New York • Philadelphia • Pittsburgh • Chicago • Houston • Tulsa • San Francisco • Los Angeles
TUBE TURNS OF CANADA LIMITED, CHATHAM, ONTARIO . . . A wholly owned subsidiary of TUBE TURNS, INC.

HOW TO SAVE PURCHASING TIME

YOUR DISTRIBUTOR

gives you service *promptly*



DON'T LOSE VALUABLE TIME while materials are being shipped from distant points. Your TUBE TURNS' Distributor carries a wide variety of items to expedite delivery and provide fast service for you. And his products give you outstanding value . . . leading brands that you can depend on, obtainable with a minimum of red tape and lost motion.

TUBE TURNS' Distributors and TUBE TURNS, INC. are united in their determination to serve you efficiently. Authorized TUBE TURNS' Distributors are located in all principal cities.

tt
TUBE-TURN
TRADE MARK

"tt" and "TUBE-TURN" Reg. U.S. Pat. Off.



Be sure you see the double "tt"

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9 design problems that can be met with the... Allenut

Ever-increasing applications for the new ALLENUT have caused sales to double within the past two years. Here are some of the things it can do to aid your product designing:



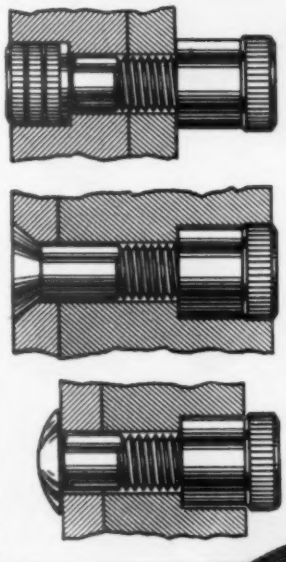
1. Self-anchoring in any metal. Allenut provides positive anchoring action through its hardened knurls.

2. Compact design. Requires no space for box wrenching. 12-point socket permits tightening in awkward places.

3. Smooth surfaces. Fits flush or below surface in counterbored hole . . . permits streamlined, safe surfaces.

4. A ready-made, hardened, tapped hole. When used as a bushing, prevents costly stripping of threads caused by frequent removal and replacement of screw or bolt. In castings and other soft metals a stripped hole can be counterbored, an Allenut inserted and the same bolt or screw used.

5. Tighter fit. Greater thread contact than with ordinary nuts because of Class 3 fit. Weld-like setups accomplished with one hand wrenching. Allenut holds firm against turn of screw.



6. Usable with any type of bolt or screw. Permits space-saving, internal wrenching of cap screws, T bolts, machine bolts, and other common fasteners.

7. Saves parts. No washers required when anchored.

8. Easier to use. Knurled ring facilitates fingering-in. Allenut is always square to counterbored hole. Removable by hitting screw or bolt head with tap of a hammer.

9. Reusable indefinitely. Anchoring action remains unimpaired. Hardened threads and socket stand up under repeated removal and replacement.



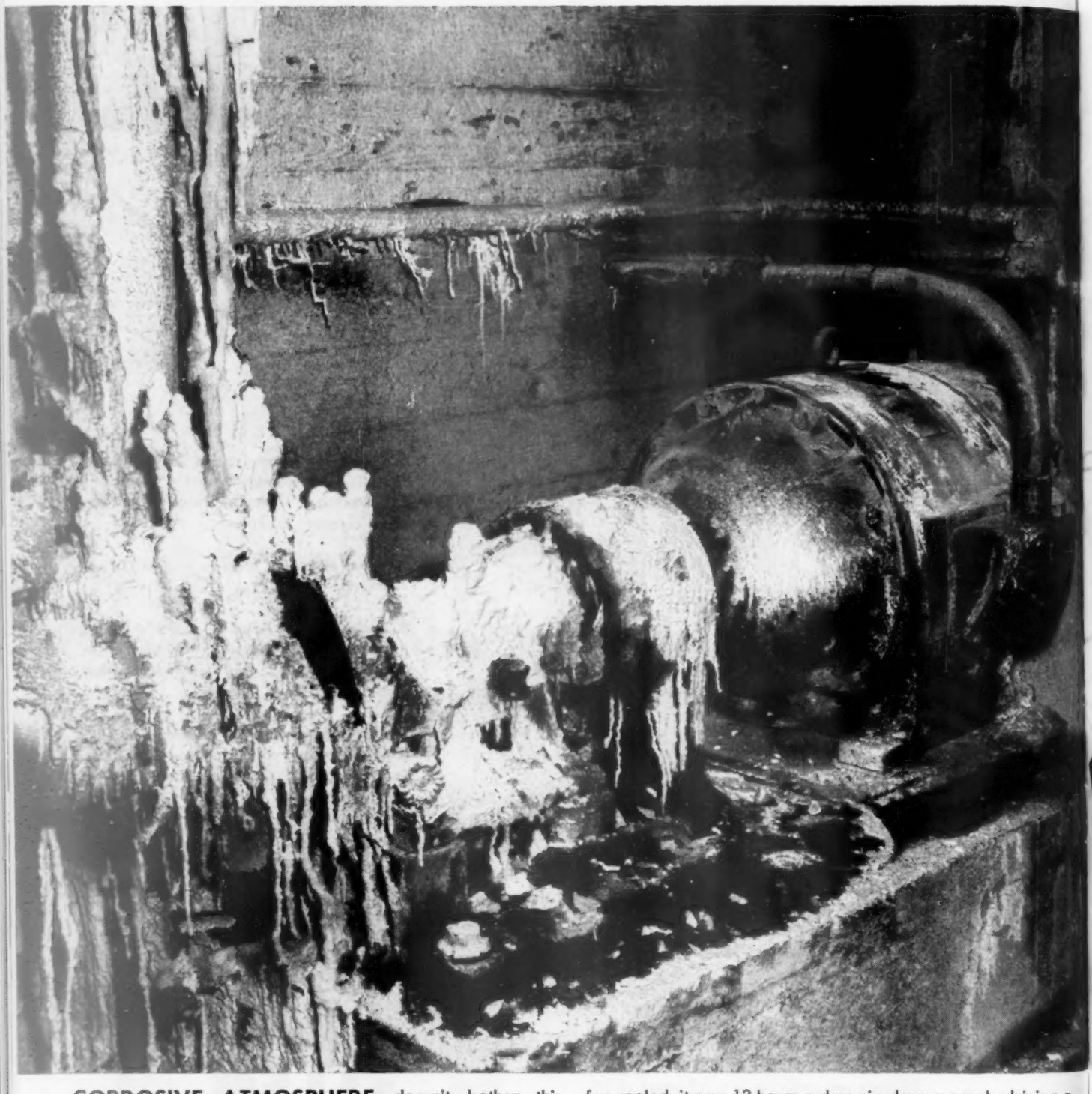
Allenuts are available in a full range of 14 standard sizes from no. 4 to 1" from leading industrial distributors.

We welcome your inquiry and request for engineering details on Allenut applications.





WHEN JOBS ARE TOUGH



CORROSIVE ATMOSPHERE doesn't bother this standard, "off-the-shelf" Tri-Clad motor. Totally enclosed, fan cooled, it runs 12 hours a day, six days a week, driving a flash cooler pump under tough conditions in a chemical plant.

GENERAL ELECTRIC

What makes the SNORKEL PEN "breathe"?



Sheaffer's new Snorkel Pen created a sensation when it was introduced to the trade. Using air alone, the pen is emptied, cleaned and refilled through the filling tube of the Snorkel Pen with a one-stroke touch-down action.

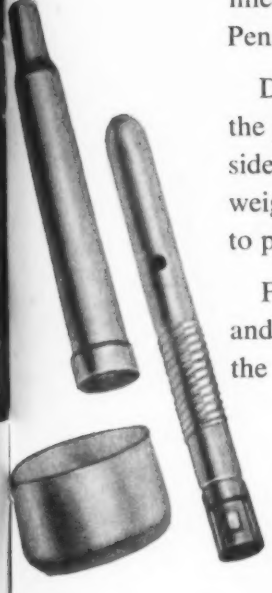
Designing the two brass "lungs" comprising the plunger-siphon mechanism called for considerable ingenuity. They must be light in weight, stiff and strong, easy to form and easy to polish and plate.

Formbrite* met all of these requirements—and more. With a metal thickness of only .0058", the 2" long cylinders are formed in multi-plunger presses in eight successive operations—*without annealing of any kind.*

Formbrite's superfine grain resulted in a harder, stronger, longer-lasting product with savings up to 50% in polishing costs.

Surprisingly, Formbrite, with all the plus values it offers over conventional drawing brasses, costs no more. See the reverse page for another application of Formbrite. And write for Publication B-39, addressing The American Brass Company, General Offices, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Limited, New Toronto, Ontario, Canada.

*Reg. U.S. Pat. Off. 5295



Cups like this, blanked and formed in one operation from Formbrite strip 1 1/16" x .0058", are magazine-fed into multi-plunger presses. Eight successive operations produce the sleeves illustrated at top of page *without annealing*. Sleeves at left are finished, ready for chromium plating.

Formbrite
is an
ANACONDA PRODUCT
Made by The American Brass Company



You can do this *better cheaper faster*

IF THE METAL IS Formbrite

Since The American Brass Company introduced Formbrite* as a superior drawing brass, scores of stamping shops, polishing and plating rooms throughout the country have changed their thinking.

Comparative tests prove conclusively that the superfine grain structure of this specially processed forming brass means stamped and formed products that are stronger, harder, "springier" and more scratch-resistant. Yet the metal is so ductile that it can be readily formed, drawn and embossed.

Timestudies made of finishing operations have shown that a bright, lustrous finish can be obtained by a simple "color buffing" operation in half the time previously required.

That's why we say you can do it *better, cheaper and faster* with Formbrite. Millions of pounds of Formbrite sheet and strip have been produced and economically fabricated into hundreds of different products. Want a sample—and more information? Address The American Brass Company, General Offices, Waterbury 20, Connecticut. In Canada: Anaconda American Brass Limited, New Toronto, Ontario, Canada. 5295

*Reg. U.S. Pat. Off.



In the pressroom of a supplier, the back of a military brush is blanked from Formbrite red brass strip.

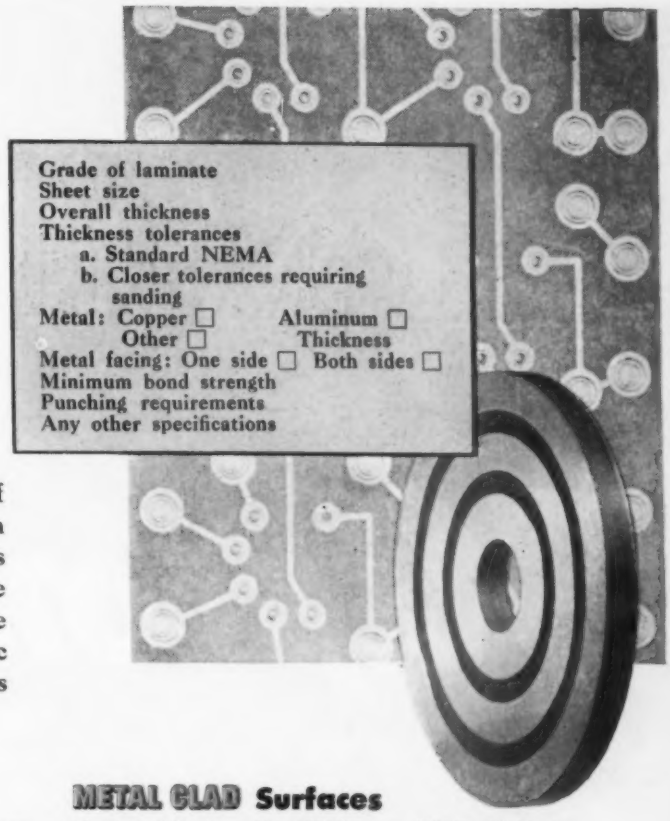


Empire Brushes, Inc., Port Chester, N. Y. produces an extensive line of military and clothing brushes with Formbrite components. At right, a decorative band is being applied.

Formbrite
is an
ANACONDA PRODUCT
Made by The American Brass Company

Information Wanted...

about your uses for C-D-F METAL CLADS



Grade of laminate
Sheet size
Overall thickness
Thickness tolerances
a. Standard NEMA
b. Closer tolerances requiring sanding
Metal: Copper ☐ Aluminum ☐
Other ☐ Thickness
Metal facing: One side ☐ Both sides ☐
Minimum bond strength
Punching requirements
Any other specifications

Did you know that C-D-F supplies a full range of metal clad laminates in both Dilecto and Teflon grades? With mounting interest in printed circuits it pays to consider the respective advantages of these new C-D-F materials . . . it also pays to line up all the Information Wanted facts and discuss your specific application with your C-D-F sales engineer (Offices in principal cities). He's a good man to know!

Dilecto METAL CLADS

Printed circuits depend upon stable, uniform core material and Dilecto has years of proven insulation service (Dilecto is a laminated thermosetting plastic made only by C-D-F from paper, cotton, glass or asbestos fabric base, or a mat base). Normally phenolic or melamine impregnating resins are used for METAL CLAD sheet stock. There are many grades of Dilecto, but only the better electrical grades are supplied with metal foil surfaces. Outstanding is C-D-F grade XXXP-26, a hot punching grade with high insulation resistance, low and stable dielectric losses and excellent moisture resistance. Green color. New C-D-F Catalog GF-53 gives complete data on Dilecto grades. Write for your copy today.

Teflon* METAL CLADS

Glass fiber cloth is first coated with Teflon resin and laminated into C-D-F GB-112T sheet stock. This base withstands high heat (200°C. maximum operating temperature) with the dissipation factor and dielectric constant extremely low over a wide frequency range. No adhesive film is needed to bond metal to the Teflon laminate, thus the inherently good electrical properties of the core material are maintained. GB-112T has practically zero water absorption, so a METAL CLAD with this core offers consistent high insulation resistance with excellent stability of dielectric loss properties.

METAL CLAD Surfaces

Copper foil (usually .00135" or .0027" thick) is bonded on one or both faces of the sheet grade of Dilecto selected. The foil used is a special grade of electrolytic deposition copper particularly adaptable for cementing onto laminated materials. An adhesive film is placed between the metal and the Dilecto, and cemented during the pressing and curing cycle. When closer tolerances are required C-D-F sands the Dilecto to the required thickness before bonding. Aluminum, silver, or other alloys of various metals may be supplied.

Better Bond Strengths

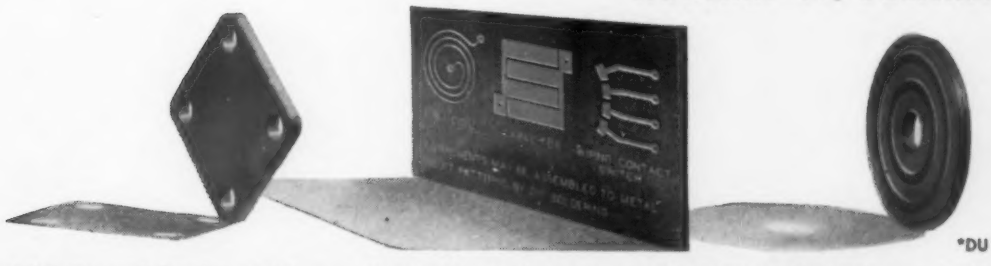
One of the most important physical properties of a metal clad product is its peel strength, the pounds pull required to separate the foil surface from the core material. Working with years of laminating know-how, C-D-F has been successful in obtaining the following average test values for its METAL CLAD sheet stocks:

	Lbs. pull per 1" width
XXXP-26 plus .00135" copper	5 to 8
XXXP-26 plus .0027" copper	7 to 10
XXXP-26 plus .0015" aluminum ..	9 to 12
GB-112 Teflon plus .00135" copper ..	6 to 9

Sheet sizes: Dilecto grades — 38 x 38", 38 x 42"
Teflon grades — 16 x 36"

THE NAME TO REMEMBER . . . FOR PRINTED CIRCUIT METAL CLAD STOCK

Continental-Diamond Fibre Company
NEWARK 41, DELAWARE



*DU PONT TRADE MARK

Write for new C-D-F General Catalog GF-53, new C-D-F Teflon folder T-52, and talk METAL CLADS with your C-D-F sales engineer.

now it's

Nepconol

the new trade name

for National Electric's

Thermoplastic insulated

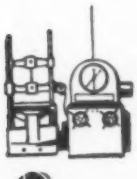
wires and cables





WING NUTS

Think of CENTRAL



RESEARCH—An outstanding creation, Central (Patented) Stamped Wing Nuts answer the demand for a sturdy, low cost thumb nut. Available in steel or brass they provide easy adjustments and improve the serviceability and appearance of your product.



KNOW-HOW—Central's special skill in the manufacture of wing nuts is not limited to the stamped wing type with its many variations. Central also produces solid, sturdy, pressed wing nuts in four standard blank patterns, brass or steel, with all standard threads.



QUALITY—Central's research and know-how coupled with high precision, high speed equipment, insures unsurpassed quality in standard or special wing nuts that spin-on and grip securely. We invite you—take advantage of Central's ability to produce for you... fast!







"You Can Depend on Central"

CENTRAL SCREW COMPANY

3501 SHIELDS AVE., CHICAGO 9, ILLINOIS

3028 E. ELEVENTH ST., LOS ANGELES, 23 CALIF. • 149 EMERALD ST., KEENE, N. H.

From SUBMINIATURE to HEAVY DUTY
From MILLIWATTS to KILOWATTS

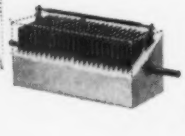


Whatever the DC requirement there's a *Federal* SELENIUM RECTIFIER to do the job!

Now Federal Offers ENCAPSULATION
OF SELENIUM RECTIFIER STACKS —plus other components



Another Federal "First"... a unique development in component-sealing that expands the application range of rectifiers and opens to industry a new concept in Military Equipment Design.



Applications range from tiny rectifiers to sub-assemblies and complete power supplies.

FOURTEEN years ago Federal introduced the selenium rectifier to America's electronic engineers and product designers.

Today, *tens of millions* of these versatile AC-to-DC power conversion units are at work in almost unlimited fields of application . . . from subminiatures with milliwatts of output to heavy duty stacks for the biggest DC-operated equipments.

Here's *proof* of the *high quality* built into Federal's compact, economical, long-life, fully inert selenium rectifiers . . . here's *proof* of their *efficiency* and *dependability* in consumer, industrial and military power conversion jobs!

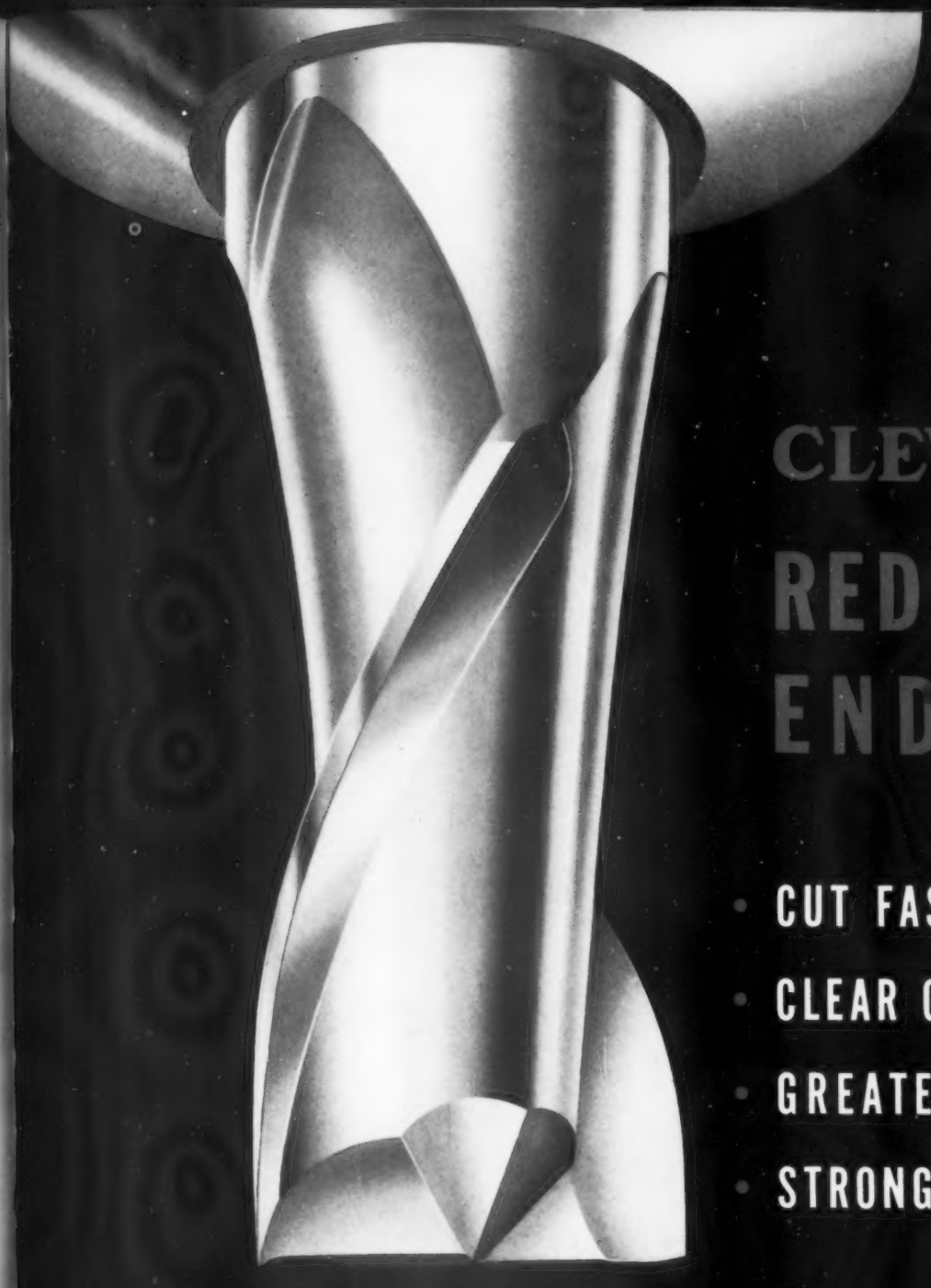
Write Federal today for information on *your* rectifier requirements . . . whatever the size, type or rating. Give your design the benefit of the research, engineering and manufacturing skill that *pioneered* the selenium rectifier . . . and now *keeps* "Federal" the standard of industry! Address Dept. F-434.

America's oldest and largest manufacturer of selenium rectifiers

Federal Telephone and Radio Corporation

SELENIUM-INTELIN DIVISION 100 KINGSLAND ROAD, CLIFTON, NEW JERSEY

In Canada: Federal Electric Manufacturing Company, Ltd., Montreal, P. Q.
Export Distributors: International Standard Electric Corp., 67 Broad St., N. Y.



CLEVELAND REDESIGNED END MILLS

- CUT FASTER
- CLEAR CHIPS BETTER
- GREATER ACCURACY
- STRONGER • MORE DURABLE

New flute shape reduces wear on the cutting edge . . . gives maximum cutting qualities at increased rates of feed.

Telephone Your Industrial Supply Distributor

CLEVELAND
DISTRIBUTORS EVERYWHERE
are ready to serve you!

THE CLEVELAND TWIST DRILL CO.

1242 East 49th Street • Cleveland 14, Ohio

Stockrooms: New York 7 • Detroit 2 • Chicago 6 • Dallas 2 • San Francisco 5 • Los Angeles 58

E. P. Barrus, Ltd., London W. 3, England



"What would you have done?" asks Mr. George Fehlman

Executive Vice-President, Belnap & Thompson, Inc., Chicago—merchandise prize incentive programs

"Recently, we had to deliver prize material to client sales meetings, scheduled all over the country for the same day.

"We were forbidden to ship early—and we *must* not be late! What would you have done?

"We called Air Express.

"Within 24 hours, almost 1,000 shipments were dispatched. All arrived on schedule. Not a single call or wire inquiring about a shipment was received!

"We've become accustomed to that kind of service from Air Express. What's more—on practically every shipment we make, the Air Express rate is *lowest* in the field. These rate differences often save several hundred dollars in one day's shipping!

"Our business has grown from $4½ million yearly sales 5 years ago, to more than $9 million this year. We give credit for an important 'assist' to Air Express!"



AIR EXPRESS

GETS THERE FIRST

Division of Railway Express Agency
1952—our 25th year of service

What to look for in a safety switch

- **Maximum protection for electric circuits and personnel**
- **Ease and flexibility of installation**
- **Convenient and safe maintenance**

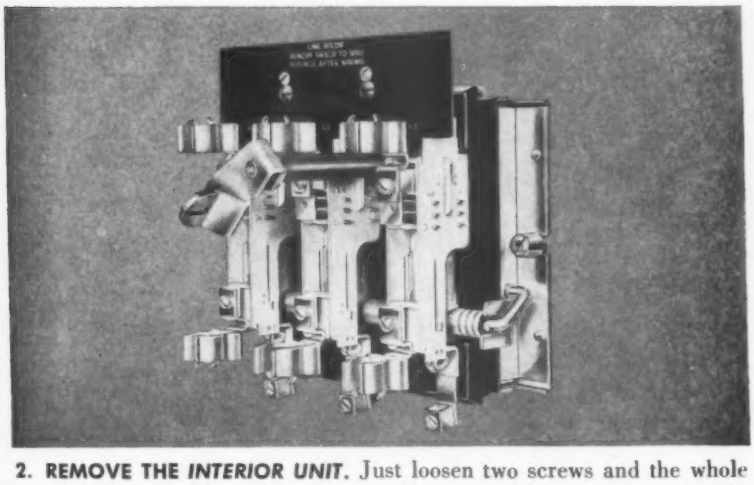
A modern, top quality, heavy-duty industrial safety switch *should* fulfill these requirements . . . but what are the design and construction features that make certain that it *will?*

Let's take a close look at the front-operated HCI switch*—Trumbull's best—and check its features point by point.

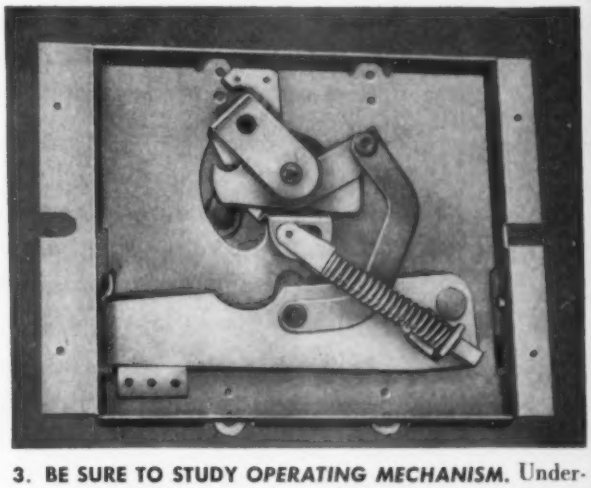
**Meets NEMA types 1 and 1A specifications.*



1. START ON THE OUTSIDE—*THE ENCLOSURE.* Made of heavy gauge steel, specially treated and then coated with high-baked enamel for corrosion resistance. That *handle* is important, too. It has a releasable interlock for use of authorized inspectors only and will take three padlocks. The *cover latch* may be locked independent of the handle so the switch can be operated but not tampered with. The front is provided with a gasket, making the enclosure semi-dust-tight. Inside there's ample room for wiring—and plenty of *knockouts.* Three mounting holes make possible easy leveling and allow mounting on uneven surfaces.



2. REMOVE THE *INTERIOR UNIT.* Just loosen two screws and the whole interior slips out. The *pole units* are self-contained for easy removal without disconnecting wiring and use *silver-plated current-carrying parts . . . arc-resisting, linen-melamine insulating parts.* U-shaped *movable conductors* bring gap between line and load contacts to less than ½ inch reducing possibility of arc damage. Exclusive design of *pole units* and *contacts* take advantage of magnetic repulsion principle to give maximum arc-quench and contact bind (look further into this feature; it's the key to the long life expectancy of the Trumbull HCI).



3. BE SURE TO STUDY *OPERATING MECHANISM.* Underside of the HCI interior shows this operating mechanism which is protected by a riveted *cover plate.* It uses a *roller-cam action* and a multiplying *linkage* design with a powerful *spring* that always throws to full OFF or ON. No halfway position because there's no dead center.

Write for full data on Trumbull top quality, heavy-duty industrial safety-switch line—the HCI. Ask for Bulletin TEC-10.

TRUMBULL T ELECTRIC

DEPARTMENT OF GENERAL ELECTRIC COMPANY

PLAINVILLE, CONN.



36 Standard the "TRAVEL"

One of four Standard wheels on the 10-ton capacity bucket trolley.

. . . designed, fabricated and erected by Heyl & Patterson, Inc. for Weirton Steel

Newly completed by Heyl & Patterson, Inc. of Pittsburgh, Pa., for Weirton Steel, this 10-ton capacity, *traveling* man-trolley ore bridge, used for stocking, transferring and reclaiming iron ore, is a basic implement to modern blast furnace operation.

Operating around-the-clock, seven days a week, this mobile structure must necessarily be rugged and dependable to stand the rigorous conditions of continuous steel plant operations.

And serving in a really tough capacity—where the physical properties to withstand stresses and strains are all important—are thirty-six Standard Steel wheels. The travel of the entire bridge, as well as the travel of the trolley with the bucket depends on the performance reliability of these quality wheels.

Meeting the test of such severe service conditions, is nothing new for Standard Steel Works products. Starting with steel produced in Standard's own open hearth furnaces, where the most rigid control can be maintained, wheel blanks are produced free from flaws . . . completely uniform in structure . . . with close dimensional tolerances.

All of which means that at Standard Steel Works, you get the *performance, reliability* and top-notch *quality* that will safeguard the reputation of your products. You'll find Standard an ideal supplier—big enough to handle almost any job, yet small enough to make each job a matter of individual concern.

BALDWIN BLH LIMA-HAMILTON

STANDARDIZE ON STANDARD for



GEAR BLANKS



STEEL CASTINGS



FORGINGS



WELDLESS RINGS

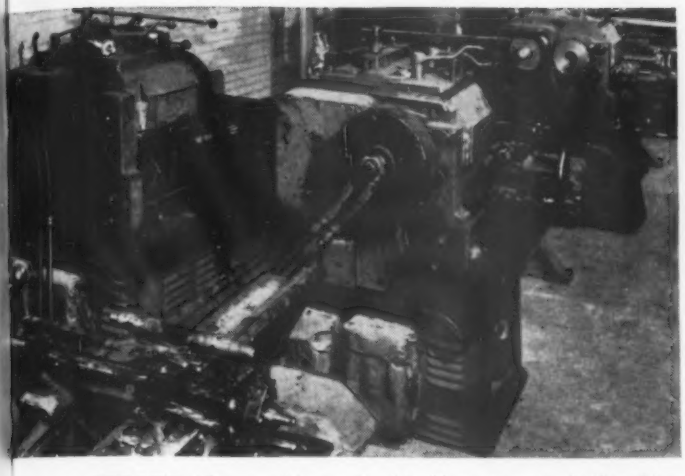


FLANGES

BALDWIN-LIMA

Philadelphia 42, Pa. • Offices in Principal Cities

DEFENSE PLANT DE-MOTHBALLED FAST WITH THE HELP OF TWO SUN PRODUCTS



BEFORE: The machinery in this Navy-owned shell-making plant stood idle—coated with a rust preventive—for 5 years after World War II. When asked to reactivate the plant in three months, the U. S. Hoffman Machinery Corporation anticipated a complete machinery teardown for cleaning, because the rust preventive had seeped into the working parts.



AFTER: No teardown was needed. Sun Spirits did the external cleaning job and the detergency of Sunvis H.D. 700 Oils the internal job—cleaning out parts and freeing hydraulic systems. Thanks to the effectiveness of these products, the job was completed and the plant put in operating condition within the three months specified by the Navy.

Recently the U. S. Hoffman Machinery Corporation was asked to reopen a World War II Navy-owned shell-making plant and start production in three months. The machinery, idle for 5 years, had been protected by an external layer of rust preventive. Headstocks, gear units and hydraulic lines were among the parts coated, and unfortunately some of the protective material had seeped into them. It looked as if the machinery might have to be torn down to be cleaned.

Hoffman invited Sun and several other oil companies to survey the machinery and suggest cleaning methods. The company chose Sun's recommendations on the basis of their soundness, as well as on Sun's record for reliable service in other Hoffman plants. The Sun products used eliminated the need for any dismantling. Sun Spirits did the external cleaning job. Sunvis H.D. 700 Oils freed up the hydraulic systems, many of which were extremely sluggish; the detergency of these oils flushed away every last trace of sludge and rust preventive.

Throughout the entire cleaning and recharging process, Sun representatives stayed on the job. As part of Sun's regular service, they trained the oilers, helped work out an inventory control system, and set up lubrication schedules. The terms of the Navy contract were met, and vital defense production was started on schedule. In the year and a half that has since elapsed, there have been no machine failures traceable to poor lubrication.

SUN OIL COMPANY, Dept. PU-12
Philadelphia 3, Pa.

☐ I would like to consult with a Sun representative.

☐ Please send me a copy of "Sunvis H.D. 700 Oils."

Name_____

Title_____

Company_____

Address_____

City_____ Zone_____ State_____

TECHNICAL ASSISTANCE AVAILABLE. Sun's engineers are at your service for consultation on any matters concerning hydraulics, lubrication or metalworking. It will pay you to utilize the broad experience they have gained in solving a wide variety of lubricating and processing problems in many different industries.

SUN INDUSTRIAL PRODUCTS

SUN OIL COMPANY, PHILADELPHIA 3, PA. • SUN OIL COMPANY, LTD., TORONTO AND MONTREAL

SUNOCO®



PURCHASING RECORDS WILL PROVE

YOU GET BETTER PERFORMANCE ON THE "TOUGH" JOBS FROM RUBBER PRODUCTS MADE WITH

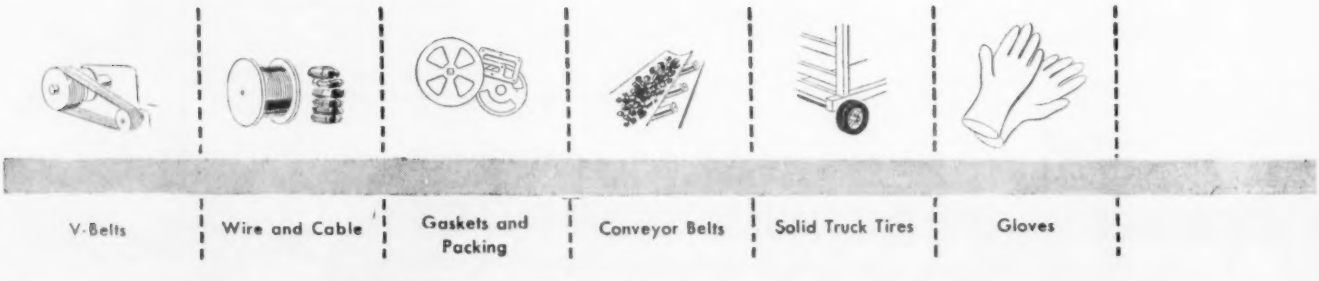
NEOPRENE

Many purchasing agents have found proof of neoprene's superiority right in their own files. Longer time between purchases . . . fewer replacement orders . . . and smaller inventories are all possible because *neoprene* means longer life and better service in products like V-belts, hose, gaskets, packing, and protective clothing.

And, if you keep service-life records or have access to them, you can "double-check" neoprene's performance. That's what was done in the three cases described on the right.

Ask your distributor or rubber goods manufacturer about neoprene products . . . or write to us. While Du Pont does not make any finished products of neoprene, we'll be glad to put you in touch with suppliers in your area.

Specify NEOPRENE when you buy these products:





Now... Get EXACTLY the drill you need!

No longer is it necessary for you to compromise on an electric drill that's "almost" right for your job.

The three PET Superduty Drills you see above are typical examples of a complete line of 54 industrial drill models—*each with separate and distinct operating ranges.*

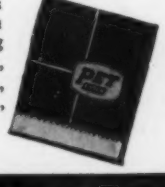
Complicated? Not a bit! It simply widens your choice . . . gives you a chance to select the PET drill with the *exact* characteristics you need in maintenance or on your production line. Naturally that means more efficient work and longer drill life.

As for quality, there isn't a finer drill made! Every PET drill is built for rugged, *continuous* duty. Features such as dynamically balanced armatures, precision-cut gears and ample reserve power are *standard;* not "optionals" that build up the cost. Control of every manufacturing step, including production of our own motors and die castings, assures uniformly high quality of every PET product.

And, *the price is lower than you think.* If you want the best in electric drills . . . a selection that's wide enough to give you exactly the drill you need . . . get the facts on PET Superduty Drills!

Write for this FREE catalog

It's packed with information and specifications on PET drills, bench and hand grinders, sprayers, accessories. Here's a catalog you'll want to study from cover to cover! Write for Catalog and name of nearest distributor, to Portable Electric Tools, Inc., Dept. P-122, 320 West 83rd St., Chicago 20, Illinois.



The features you want are the features you get—in PET Superduty Drills

- **Reserve Power; for the extra-tough job**
- **Heavy-Duty ball and needle bearings**
- **Precision-Cut, Heat-Treated Gears; for smooth, quiet power flow**
- **Dynamically Balanced Armatures; for freedom from vibration**
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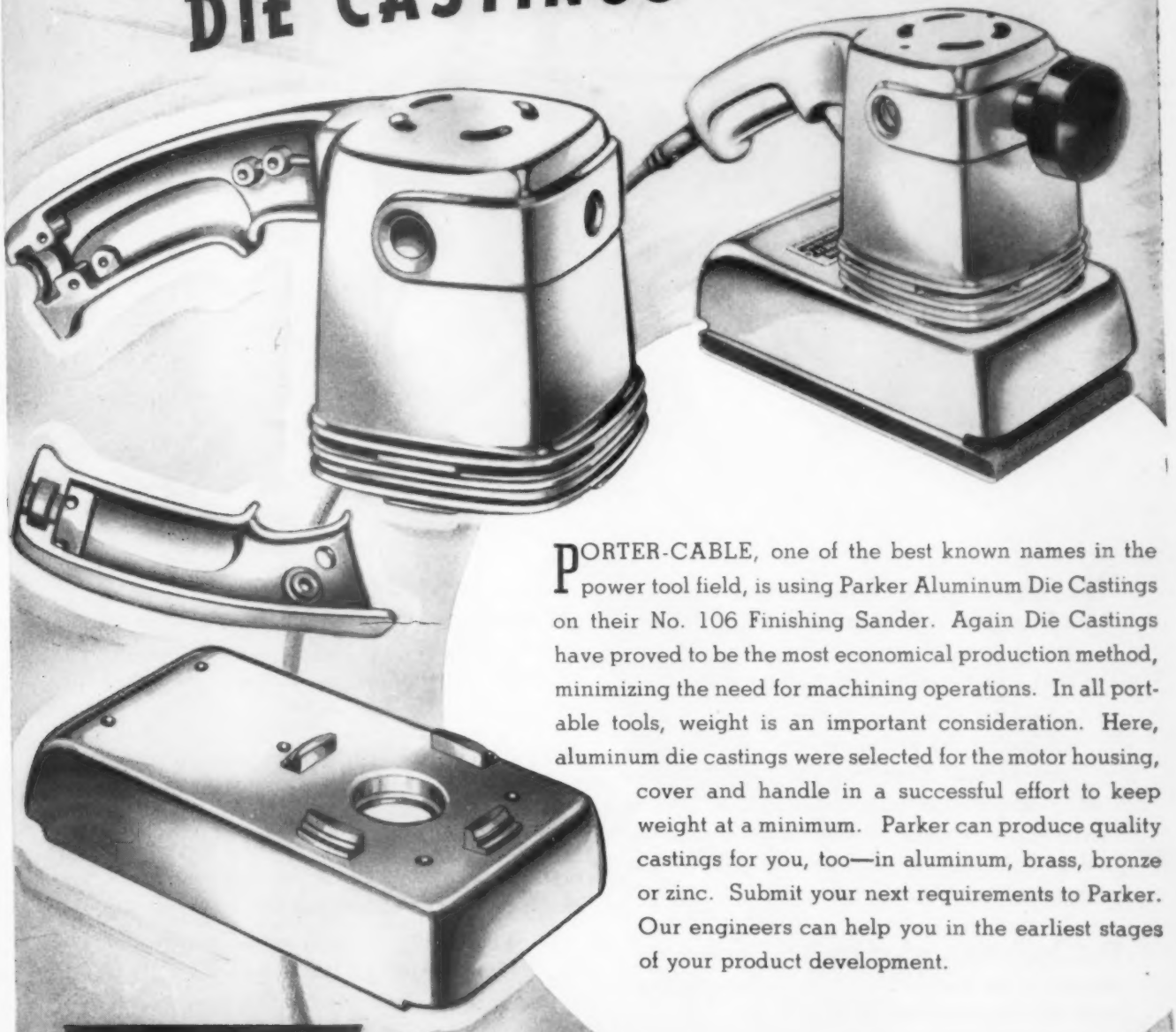
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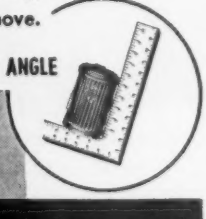
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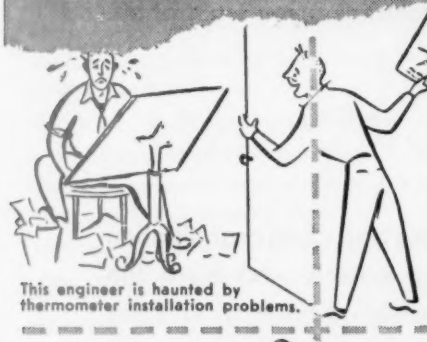
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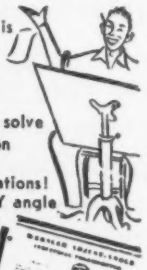
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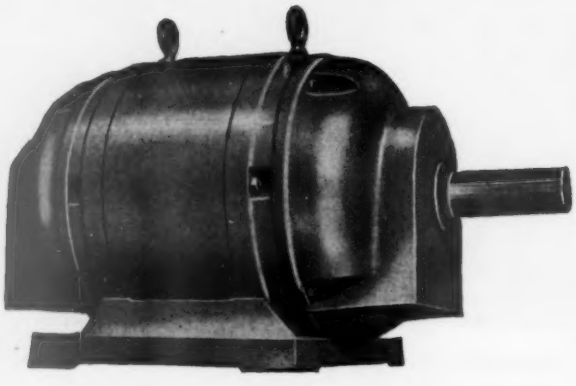


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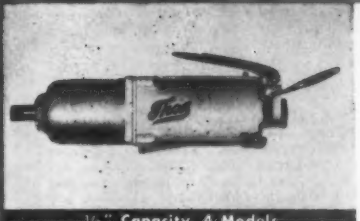
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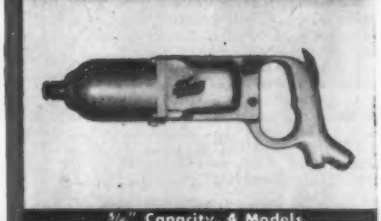
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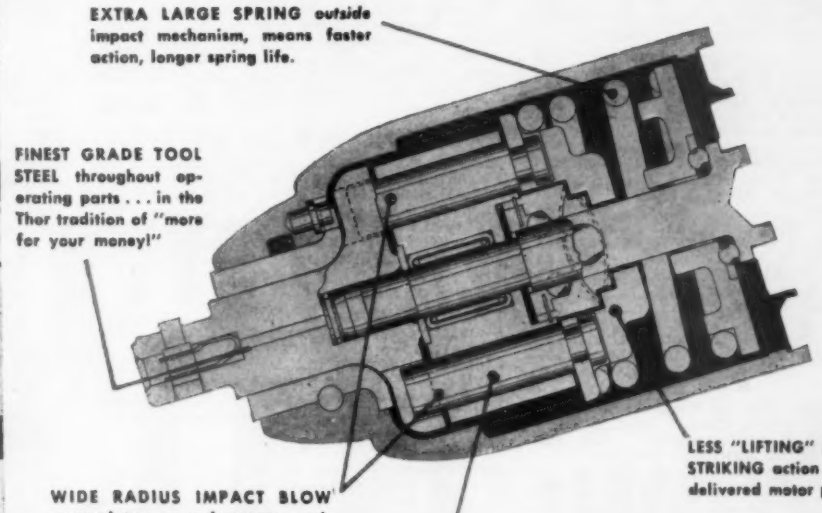
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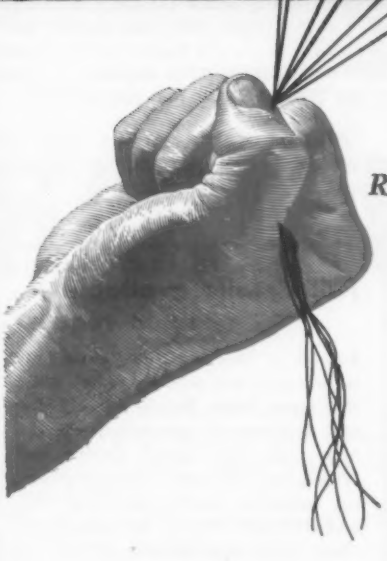
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SPECIFY DU PONT "CORDURA" for STRETCH-FREE STRENGTH . . . FLEXIBILITY

Rayon-reinforced conveyor belt on wheels . . . new aid in continuous mining

When you specify belting reinforced with Du Pont Cordura* High Tenacity Rayon, you get extra, stretch-free strength *plus* flexibility.

The "Molveyor" pictured above—a series of short conveyor belts on wheels—can twist around corners to reach the spot where coal is being mined, and carry the coal back to the main conveyor in a steady flow. To make this aid to continuous mining practical, the Jeffrey Mining Co. of Columbus, Ohio, needed belts strong enough to take the impact of falling coal, yet thin and flexible to pass around the unusually small pulleys. They selected belts reinforced with Du Pont "Cordura."

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Panel discussions on how casters help reduce the **"Reducible 30%"***

MATERIALS-HANDLING FORUM

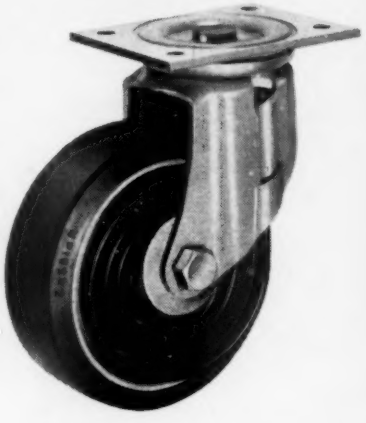
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"Floating-Hub", an exclusive Bassick development, brings a practical, successful principle of built-in shock absorption to wheel construction, applying mechanical resiliency between rim and axle.



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Bassick's "Floating-Hub" is available in many sizes (from 6 to 16 in.) and many types (the one shown is No. S-8096R-2 . . . a high quality, double ball race caster with wheels for loads from 500 to 1000 lbs. per caster).

"Floating-Hub" running gear can double the efficiency and life of trailer trucks.

9 Ways "Floating-Hub" smooths and simplifies materials-handling

On trucks and portable equipment "Floating-Hub" (1) absorbs shock, (2) dampens vibration, (3) eliminates bouncing action, (4) rides over obstacles, (5) rolls easier, (6) reduces noise, (7) protects loads, (8) protects floors, (9) reduces truck maintenance by lengthening the life of the truck and caster or wheel equipped with it.

PATENTED CONSTRUCTION DIFFERS FROM ORDINARY SPRING MOUNTINGS

Unlike the usual spring-action device that merely bounces the load over a bump, Bassick's unique "Floating-Hub" snubs the bounce. It rides with the punch, backs away with the blow and at the same time starts its climb. It keeps all wheels in contact with the floor.

Thus, it is entirely different in principle and action from ordinary spring mountings.



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"Floating-Hub" makes trucks and portable equipment as easy-riding as a fine automobile.

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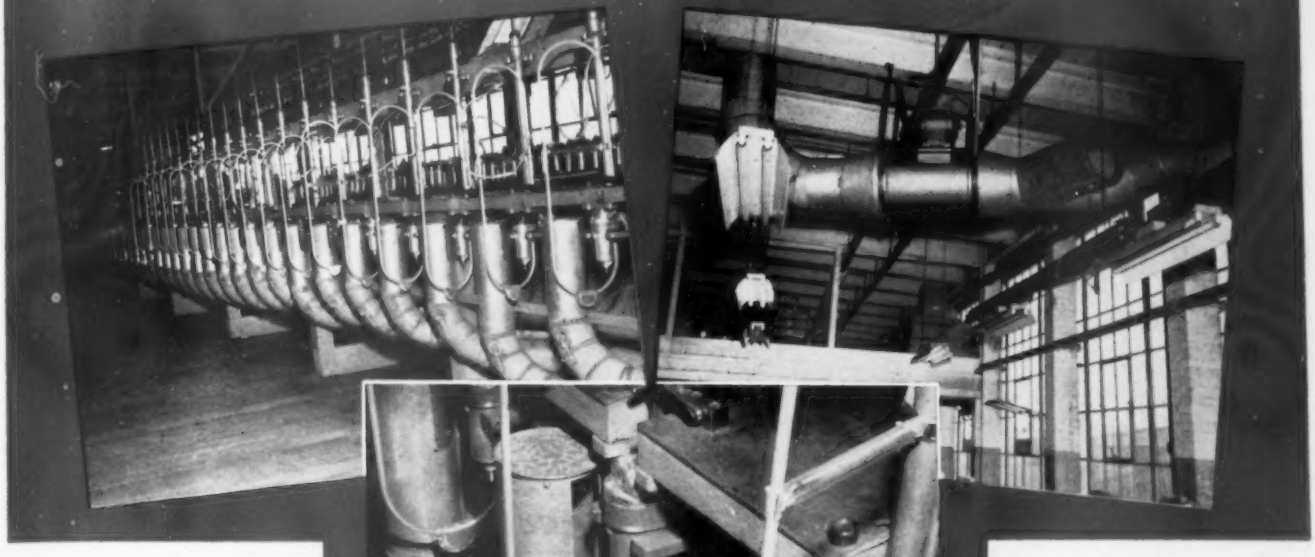


*According to cost analysts, materials-handling (about 30% of total cost) affords about the only real opportunities for cost reduction today.

Bassick A DIVISION OF STEWART WARNER

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In Connecticut



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This is the single blower, in a single duct, which applies air to the 40 stations. Plenty of power against pressure.

Application of air to motor is mighty simple, as shown here. Yes, mighty simple . . . but mighty effective, too.

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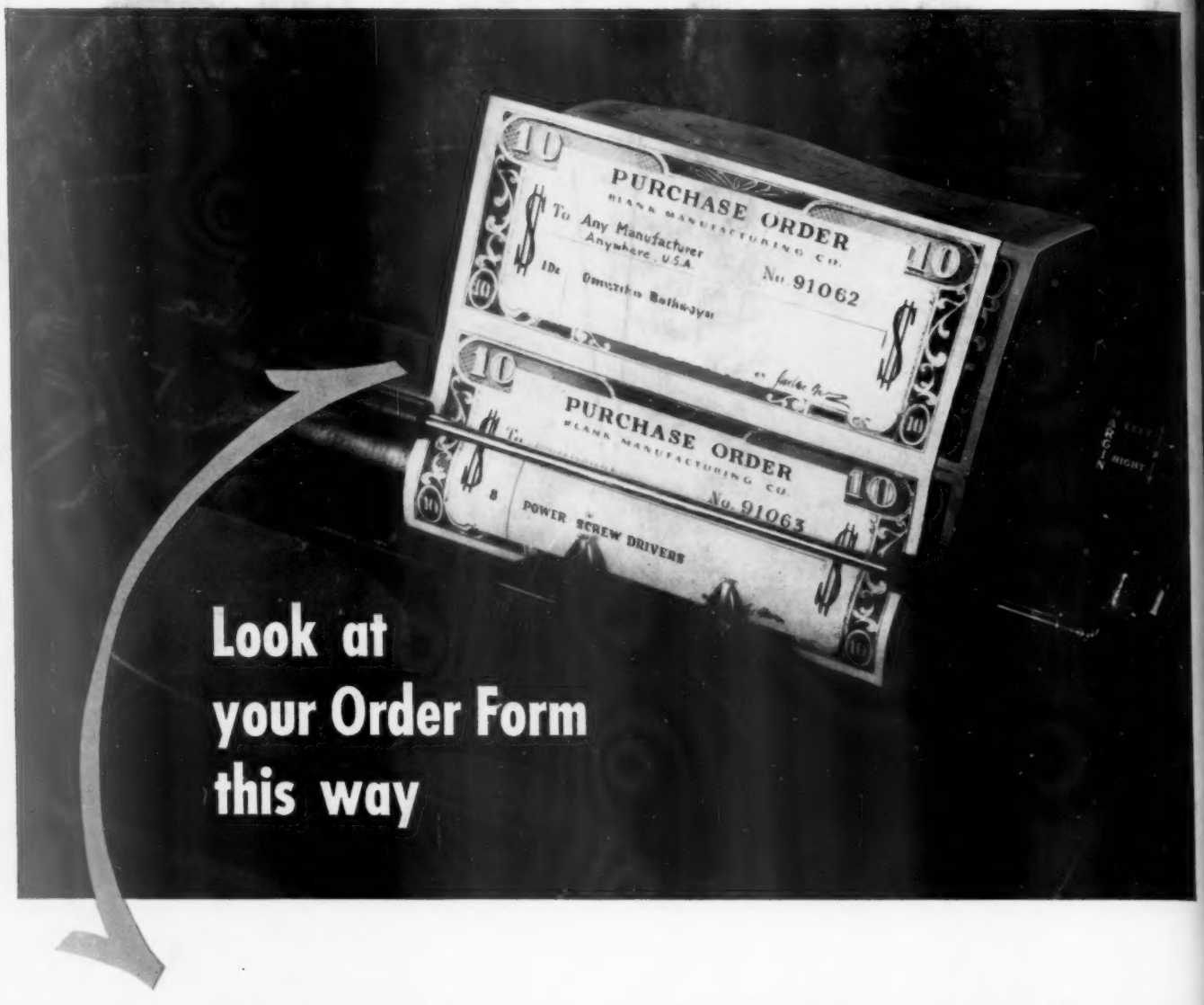
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